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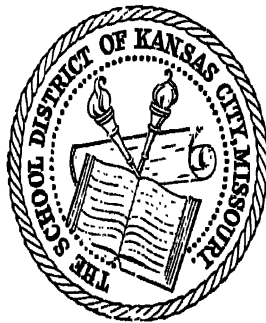
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American Association
FOR
Study and Prevention
OF
Infant Mortality

TRANSACTIONS

OF THE
Third Annual Meeting

Cleveland, Ohio

October, 2-5, 1912

Press of
THE FRANKLIN PRINTING CO.
Baltimore
1913

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**The fourth annual Meeting of the American Association
for Study and Prevention of Infant Mortality, will be held
in Kansas City, Mo., October 23-25, 1913.**

TABLE OF CONTENTS

	PAGE
List of Directors, 1911-1912.....	3
List of Committees, 1911-1912.....	4
List of Directors, 1912-1913.....	7
Report of Meeting	12
Report of Executive Secretary.....	16
Report of Treasurer	21
Opening Session, October 2, 1912	
Address of Welcome, Hon. Newton D. Baker.....	22
Address by the President for 1912, Cressy L. Wilbur, M. D....	25
The Aseptic Rearing of Children, by Jacques Bertillon, M. D..	42
The Federal Children's Bureau, by Julia C. Rathrop.....	47
General Session, October 3, 1912	
Eugenics: The Rearing of the Human Thoroughbred, by H. H. Jordan, Ph. D.....	52
The Health Age, by Janet Lane-Claypon, M. D.....	66
General Session, October 4, 1912	
Better Parents of Better Children, by Helen C. Putnam, M. D.	72
Address by the President for 1913, L. Emmett Holt, M. D.....	78
Report:	
The Department of Health's Activity in Lessening Infant Mortality in Pennsylvania, by B. Franklin Royer, M. D....	87
Section Meetings:	
Birth Registration:	
Introductory Statement by the Chairman, Wilmer R. Batt, M. D.....	93
Report of Committee on Birth Registration, Wilmer R. Batt, M. D.....	94
The Utilization of Birth Records in the Practical Administration of Bureaus of Child Labor, Tenement House Inspection, Compulsory School Attendance, Infant Hygiene and Similar Agencies, by William H. Guilfooy, M. D.....	96

	PAGE
The Legal Importance of Birth Registration, by Elmer W. Ehler	102
The Size of Families in Relation to Nationality, Occupation and Economic Conditions, and the Relative Occurrence of Stillbirths in the Various Classes of Population, by William H. Davis, M. D.....	109
Discussion.....	118
Continuation Schools (Second Conference) :	
Introduction by the Chairman, Helen C. Putnam, M. D... ..	118
Education of Boys and Men for Home-Making in Part-Time and Continuation Schools, by C. A. Prosser.....	123
Home Economics Work in the United States for Men and Boys, by Charles Ford Langworthy, Ph. D.....	131
Discussion.....	141
Eugenics (Second Conference) :	
The Significance of Heredity, by Alfred G. Mayer, Sc.D..	148
Eugenics and Infant Mortality, by H. H. Laughlin.....	150
Infant Mortality in Relation to the Hereditary Effects of Tuberculosis, Statement by the Chairman, H. M. Jordan, Ph. D.....	154
The Eugenic Aspect of Venereal Disease, by H. M. Jordan, Ph. D.....	150
Eugenics and Mental Variations, by Roswell H. Johnson, M. S.....	164
Infant Mortality in Relation to the Hereditary Effects of Mental Deficiency, by Henry H. Goddard, Ph. D.....	107
The Euthenical and Eugenic Aspects of Infant and Child Orthogenesis, by J. M. Wallace Wallin.....	173
Progress in Preventive Work :	
Maternal Feeding, by J. P. Sedgwick, M. D.....	195
Discussion	203
Pasteurization, Sterilization and Boiling of Milk, by Henry F. Helmholtz, M. D.....	206
Discussion	212
Midwifery :	
Statement by the Chairman, Mary Sherwood, M. D.....	219
The Elimination of the Midwife, by Charles Edward Ziegler, A. M., M. D.....	222
Does the Average Midwife Meet the Requirements of a Patient in Confinement? By George W. Kosmak, M. D..	238
Discussion	250
Reports :	
Midwifery Investigation, Birmingham, Ala., by Wm. M. McGrath	260
Investigation of 363 Midwives in Chicago, by Caroline Hedger, M. D.....	261

	PAGE
Midwifery Investigation in Louisville, Ky., by Elizabeth Shaver	265
New England Committee.....	266
Baltimore, Md., Report on the Study of Agencies Caring for Women in Confinement, by Louise Pearce, M. D....	272
Substitute Agencies in Cleveland, by Theodore M. Miller, M. D.....	275
Housing:	
Introductory Remarks by the Chairman, Prof. C.-E. A. Winslow, Ph. D.....	277
Report upon a Study of Environmental Conditions and Infant Health in Providence, by Charles V. Chapin, M. D.....	279
Report on Study of Temperature and Infant Health in Chicago, by Henry F. Helmholz, M. D.....	282
The Effect of Moderately High Temperature upon the Infant, by J. H. Mason Knox, Jr., M. D.....	284
Discussion	289
Nursing and Social Work:	
The Pre-natal Work of the St. Louis Visiting Nurse Association, by Margaret N. McClure, R. N.....	292
Caroline Rest and School for Mothers, by Miss F. Freese, R. N.....	295
The Public Health School Nurse and Infant Mortality, by John H. Lowman, M. D.....	308
Discussion	315
Educational Opportunities of the Day Nursery, by Miss Myrn Brockett.....	317
Affiliated Societies—Reports of.....	325
Constitution	355
Membership List.....	359
Index	377

THIRD ANNUAL MEETING
of the
AMERICAN ASSOCIATION FOR STUDY AND PRE-
VENTION OF INFANT MORTALITY

The third annual meeting of the American Association for Study and Prevention of Infant Mortality was held in the auditorium of the Engineers' Building, Cleveland, October 2, 3, 4 and 5, 1912, under the presidency of Dr. Cressy L. Wilbur, Chief of the Division of Vital Statistics of the Bureau of the Census, Washington. Provision was made for three popular sessions, six section meetings, one general meeting of the Association, and business meetings of the Directors and the Executive Committee.

POPULAR SESSIONS

The speakers at the popular sessions were the following:

Wednesday night, October 2—Opening meeting:

Right Rev. William A. Leonard, D. D., Bishop of the Diocese of Ohio, Opening Invocation.

Honorable Newton D. Baker, Mayor of the City of Cleveland, Address of Welcome.

The President, Cressy L. Wilbur, M. D., Washington, D. C., Address.

Dr. Jacques Bertillon, Chief of the Bureau of Statistics, Paris, France, "Puericulture Aseptique."

Miss Julia C. Lathrop, Washington, "The Federal Children's Bureau."

Thursday night, October 3:

Prof. H. H. Jordan, University of Virginia, "Eugenics: The Rearing of the Human Thoroughbred."

Dr. Janet Lane-Clayton, "The Health Age."

Friday night, October 4:

Dr. Helen C. Putnam, Providence, "Better Parents of Better Children."

Dr. L. Emmett Holt, New York, "The Importance of Hospitals for Infants and Their Part in the Prevention of Infant Mortality."

SECTION MEETINGS

Section meetings were held as follows:

Birth Registration. Dr. Wilmer R. Batt, Harrisburg, Chairman.

Continuation Schools of Home-Making. Dr. Helen C. Putnam, Providence, Chairman.

Eugenics. Prof. H. H. Jordan, University of Virginia, Chairman.
Housing. Prof. C.-E. A. Winslow, College of the City of New York,
Chairman.

Midwifery. Dr. Mary Sherwood, Baltimore, Chairman.

Nursing and Social Work. Miss Edna L. Foley, Chicago, Chairman.

Progress in Preventive Work. Dr. H. J. Gerstenberger, Cleveland,
Chairman.

MEETINGS OF THE BOARD OF DIRECTORS AND EXECUTIVE COMMITTEE

Meetings of the Board of Directors were held Wednesday afternoon, October 2; Thursday morning, October 3, and Friday afternoon, October 4. The first of these was preceded by a meeting of the Executive Committee. Reports presented at these meetings included those of the Executive Secretary, of the Treasurer, of Dr. H. J. Gerstenberger, the chairman of the committee appointed at the Chicago meeting to draft a leaflet and a booklet on the care of babies, and of Dr. J. H. M. Knox, Jr., chairman of the Committee on Revision of Constitution. The preliminary drafts of the leaflet and booklet were read and adopted, and the committee was authorized to arrange for their publication. Changes proposed to the constitution were acted upon. The amendments adopted have been incorporated in the revised copy of the constitution to be found on pages 355-357 of this report.

The following committees were appointed by the President:

Nominations—

Dr. J. H. Mason Knox, Jr., *Chairman*
Dr. Helen C. Putnam
Dr. L. Emmett Holt
Dr. Henry Helmholtz
Dr. F. W. Schlutz

Resolutions—

Dr. J. H. Mason Knox, Jr., *Chairman*
Dr. Helen C. Putnam
Dr. Wilmer R. Batt
Dr. H. J. Gerstenberger
Dr. S. McC. Hamill

Transactions—

Dr. John S. Fulton, *Chairman*

BUSINESS MEETINGS OF THE ASSOCIATION

Business meetings of the Association were held Thursday morning, October 3, and Friday night, October 4. In accordance with the amendment adopted to the constitution, authorizing the enlargement of the Board of Directors, the directorate was increased to seventy-five.

The following directors, whose terms of office had expired, were unanimously elected for terms of five years:

Mrs. S. S. Crockett, Nashville	Dr. Thomas Morgan Rotch, Boston
Dr. H. J. Gerstenberger, Cleveland	Dr. Mary Sherwood, Baltimore
Dr. J. H. Mason Knox, Jr., Baltimore	Mrs. Letchworth Smith, Louisville
Dr. Linnaeus E. La Letra, New York	Dr. H. Merriman Steele, New Haven

The following new directors were unanimously elected for the periods indicated:

FIVE YEARS

Dr. S. McC. Hamill, Philadelphia	Dr. H. L. K. Shaw, Albany
Miss Julia C. Lathrop, Washington	Dr. Philip Van Ingen, New York
Dr. H. M. McClanahan, Omaha	Dr. Charles Edward Ziegler, Pittsburgh
Dr. R. Langley Porter, San Francisco	

FOUR YEARS

Miss Harriet L. Leet, Cleveland	Dr. J. P. Sedgwick, Minneapolis
Dr. E. B. Mumford, Indianapolis	

THREE YEARS

Miss Minnie H. Ahrens, Chicago	Prof. Abby L. Marlatt, Madison, Huntingdon, Boston
Dr. James Lincoln	

TWO YEARS

Dr. Charles V. Chapin, Providence	Dr. George M. Tuttle, St. Louis
Miss M. Frances Kitchberger, Baltimore	

ONE YEAR

Dr. Wilmer R. Batt, Harrisburg	Dr. Hastings H. Hart, New York
Dr. Hasbrouck DeLamater, Kansas City, Mo.	Miss Zoe La Farge, Detroit

The resignation of Dr. G. W. Goler from the directorate was reported, and the President's appointment of Dr. W. R. Batt, of Harrisburg, to fill out the unexpired term was confirmed by the Association.

The Association also elected the following honorary member:

Dr. Jacques Bertillon, Chief of the Bureau of Statistics, Paris, France

The Executive Secretary reported that the number of affiliated organizations was 56; and that reports, which would be published in the Transactions, had been received from 30.

At their meeting held Friday afternoon, October 4, the Board of Directors elected

Dr. J. Whitridge Williams, Baltimore, President for 1913-1914.

At the same time the Board declared

Dr. L. Emmett Holt, New York, the President-elect, President for 1912-1913.

The Board then elected the following other officers for 1912-1913:

First Vice-President, Dr. Isaac A. Abt, Chicago.

Second Vice-President, Mr. Arthur D. Baldwin, Cleveland.

Secretary, Dr. Philip Van Ingen, New York.

Treasurer, Mr. Austin McLanahan, % Alexander Brown & Sons, Baltimore.

The Board of Directors elected the following Executive Committee:

Dr. Henry L. Coit

Dr. Haskbrouck DeLamater

Dr. John S. Fulton

Dr. L. Emmett Holt

Dr. J. H. Mason Knox, Jr.

Dr. Helen C. Putnam

Dr. Mary Sherwood

Dr. Philip Van Ingen

Dr. Cressy L. Wilbur

The following resolutions were reported favorably by the committee, and were unanimously adopted by the Association:

Resolved, In order that there may be developed exhaustive statistical studies of those problems that influence infant mortality in so many diverse ways, the title of the Committee on Birth Registration be changed to the Committee on Vital and Social Statistics; also,

Resolved, That the Association for Study and Prevention of Infant Mortality recommend, in addition to Birth and Mortality Statistics, the collection and compilation of marriage, divorce, industrial and all such social statistics as may have a relation to the problems of infant mortality.

Whereas, It has been shown that valuable results have been obtained from the requirement for proper inspection of dairy farms and dairy depots before granting a permit for the production and distribution of milk, and that the score card has been of great assistance in recording the observations made at such inspections;

Be it resolved, That the efforts which are being made to secure uniform standards for inspection and uniform methods for recording the results of inspection be approved by this Association.

Whereas, Constructive housing legislation is made difficult by the absence of comprehensive information relating infant morbidity and mortality to bad housing;

Be it resolved, By the American Association for Study and Prevention of Infant Mortality, that the Association emphasize the necessity of such investigation as will, if possible, reduce to a scientific statistical basis the cost of bad housing in terms of infant morbidity and mortality.

Resolved, That the most cordial thanks of the Association be extended to the Local Committee of Cleveland and its very active sub-commit-

tees for their successful arrangement and fulfillment of the program, and thoughtful provisions for the comfort and convenience of those in attendance at the Annual Meeting.

Resolved, That the appreciation of the Association be extended to the Babies' Dispensary and Hospital for their reception and entertainment of visiting members.

Resolved, That the thanks of the Association be extended to the press, the Mayor and other city officials, and to the people of Cleveland who have contributed materially to the success of the Annual Meeting.

Dr. L. Emmett Holt, the incoming President, was introduced to the Association at the closing session, Friday night, October 4, and in connection with his address outlined the program for the Association for the coming year. Announcement was made at this session that the fourth annual meeting of the Association would be held at Kansas City, Missouri, in the fall of 1913.

REPORT OF THE EXECUTIVE SECRETARY

November 16, 1911—November 15, 1912

TRAVELLING EXHIBIT

One tangible result of the year's work is to be seen in the travelling exhibit that was secured for the Association through the work of a small sub-committee of women in Baltimore. The fund for the exhibit was raised in the names of Baltimore babies, and the little donors represent the sons and daughters, juniors, down to the third and fourth generation, of men and women who have been prominent in the history and affairs of Maryland from the colonial days to the present. The exhibit had its first showing at the Fifteenth International Congress on Hygiene and Demography in Washington in September, where it was awarded one of the diplomas of special merit. From Washington it was sent to Albany, where it formed part of the exhibit held in connection with the opening of the new Educational Building. From Albany it was sent to Augusta, Ga. Other reservations have been made for it in Georgia and Florida, and requests have come which will keep it in the field for several months, probably all the year. The exhibit illustrates in popular form the causes, the extent and the means of reduction of infant mortality. It has been designed compactly and constructed so that it can be transported easily from place to place. It is believed that it will be one of the most effectual means of spreading the propaganda of the Association.

EDUCATIONAL PROPAGANDA

The work of the Executive Office has been devoted largely to educational propaganda and to membership campaigns. These have been carried on through personal correspondence, printed matter, circulars, leaflets, etc., prepared under the auspices of the Association and distributed to individuals and associations; through material supplied to newspapers and other publications, and through information and material furnished by the affiliated societies, and placed at the service of individuals and organizations which have applied directly to the office. In all material sent out from the office emphasis has been laid upon the importance of prenatal instruction and adequate obstetrical care of mothers, birth registration, breast feeding, consultations for nurslings, feeding conferences, classes for mothers, improvement of the milk supply, and the carefully planned training of girls and young women in the general classes in schools or in continuation classes for the duties of home-making.

WORK OF SPECIAL COMMITTEES

The special committees of the Association, through which other work has been carried forward, have included the following: Birth Registration, Eugenics, Continuation Schools of Home-Making, Nursing and Social Work; Midwifery, Progress in Preventive Work, Housing, Educational Leaflet and Booklet, Membership and Finance.

HOUSING:

Under the auspices of the Committee on Housing an investigation by voluntary workers was carried on during the summer in Chicago, Providence and Baltimore into the relation between temperature and infantile morbidity and mortality. The reports of these investigations are summarized in the papers presented at the session on Housing.

MIDWIFERY:

The Committee on Midwifery has continued its investigations of midwifery conditions, basing its inquiries on the schedule drawn up last year. It has also made a special study during the year of agencies which offer substitute care for the work of the midwife. The majority of these studies have been carried on under volunteer investigators, but the Com-

mittee is again indebted to the Maryland Society for the Prevention of Blindness, one of the affiliated societies of this Association, for financing a local investigation. This Society made possible a study of the midwifery conditions in one of the counties of Maryland during 1911. During the current year the Society has financed a study of substitute agencies for the midwife in the city of Baltimore.

PUBLIC SCHOOL EDUCATION:

In accordance with the resolutions adopted by the Association at the Chicago meeting, State Boards of Education were petitioned to urge the appointment of Commissions on Continuation Schools of Home-Making, to study needs and conditions in the State, and to report effective plans for meeting them through such continuation schools or classes.

EDUCATIONAL LEAFLET AND BOOKLET:

The committee appointed at the Chicago meeting to prepare an educational leaflet and booklet on the care of babies for distribution to mothers, and for use in classes for mothers and at welfare stations, has drafted both leaflet and booklet. The committee will be ready to arrange for their publication in the near future.

QUESTIONNAIRE TO DEPARTMENTS OF HEALTH

As a means of collecting information on which constructive work could be based during the coming year, a questionnaire was sent out during the past summer to the health departments of all of the cities in the United States with a population of 15,000 or over. The total number of inquiries sent out was 294; the total number of replies received was 103. Taking into consideration the fact that the returns from an inquiry of this sort must always be more or less inaccurate and incomplete, some significant facts were brought out in the replies. For example: Of the 103 cities from which returns were received, only 32 reported the existence of welfare stations; 38 reported milk stations; 43 reported the employment of visiting nurses, the majority of the activities being financed by private philanthropy. In only 9 of the 103 cities was infantile diarrhea listed among the reportable diseases. Only 14 cities reported that the birth records were used as a starting point for the instruction of mothers or for welfare work among either mothers or babies. These were Philadelphia, Pitts-

burgh, Pa.; Cleveland and Springfield, Ohio; Rochester, N. Y.; Duluth, Minn.; Grand Rapids and Detroit, Mich.; New Bedford, Fall River and Boston, Mass.; Milwaukee, Wis.; Washington, D. C., and Cumberland, Md. Three of these cities—Fall River, Grand Rapids and Washington, D. C.—reported that a visiting nurse is requested to call by the Health Department when no physician is in attendance at the time of confinement. Other cities reported that their efforts were limited to mailing instructive material to mothers on receipt of the birth certificate.

EMPHASIS ON EDUCATION OF MOTHERS

A striking feature of the reports received during the year from the affiliated societies has been the gradual shifting of the emphasis in many of the societies from the milk problem to the education of mothers. In all quarters greater significance is being attached to the fact that the greatest reduction accomplished in infant mortality so far has been in the digestive and respiratory diseases; and that comparatively little headway has been made in cutting down the appalling death rate of the first few days and weeks of life. This is leading to a more general recognition of the importance of prenatal care and instruction of the expectant mother as an essential, initial step in any plan of prevention.

FINANCES

The total income during the year has amounted to \$7,420.78. The balance at the beginning of the year (November 16, 1911) was \$273.43, making the total sum available for special and general expenses \$7,694.21. The disbursements amounted to \$6,872.67, leaving a balance on hand November 15, 1912, of \$821.54; of the total expenditures \$1,221.14 went for the travelling exhibit.

The income was derived as follows: \$3,734.13 from membership dues, \$1,921.00 from general contributions, \$1,413.50 for travelling exhibit, and \$352.15 from miscellaneous sources.

MEMBERSHIP

The fiscal year closes with a paid-up membership of 616, a net gain of 109 over last year; 36 States, the District of Columbia, Canada, the Philippine Islands, England, Scotland, China and Syria are represented in the enrollment. The num-

ber of members in the different classes are 10 life, 21 sustaining, 56 affiliated and 529 active. The affiliated societies have continued to be sources of strength and centers of influence.

Paid Up Membership November 15, 1912

Alabama	2
California	14
Colorado	2
Connecticut	17
District of Columbia	10
Illinois	56
Indiana	5
Iowa	1
Kansas	3
Kentucky	6
Louisiana	3
Maine	6
*Maryland	87
Massachusetts	32
Michigan	22
Minnesota	10
Mississippi	1
Missouri	12
Nebraska	2
New Jersey	17
New York	74
North Carolina	1
North Dakota	1
Ohio	127
Oklahoma	1
Oregon	1
Pennsylvania	56
Rhode Island	6
South Carolina	1
South Dakota	1
Tennessee	3
Texas	1
Utah	4
Vermont	2
Virginia	6
Washington	2
Wisconsin	10
Canada	8
China	1
England	1
Syria	2
Total	616
Life members	10
Sustaining members	21
Affiliated societies	56
Active members	529
	616

CORRESPONDENCE

In connection with the propaganda and membership campaigns 13,773 pieces of mail have been sent out. Included in this have been 2,988 personal letters, 3,329 circular letters, 50,497 pieces of printed matter.

Baltimore, November 15, 1912.

Respectfully submitted,
 GERTRUDE B. KNIPP,
Executive Secretary.

*Contributors to Exhibition Fund: Maryland, 1912, 124.

REPORT OF THE TREASURER**November 16, 1911 to November 15, 1912****Receipts :—**

Balance on hand November 16, 1911.....	\$ 273 43	
Membership dues.....	3,822 13	
Contributions General.....	1,838 00	
Contributions Exhibition Fund.....	1,418 50	
Contributions Committee on Education.....	27 00	
Sale of Transactions.....	265 10	
Refunds, freight charges.....	27 60	
Traveling expenses.....	6 86	
Interest	25 59	
		\$7,694 21

Expenditures :—

Exhibition (Traveling).....	\$1,221 14	
Rent	200 00	
Salaries	2,600 00	
Clerical help.....	283 55	
Executive office.....	385 00	
Office supplies.....	36 30	
Telephone	38 62	
Printing and stationery:		
General	792 44	
Transactions Chicago Meeting.....	777 64	
	1,570 08	
Postage:		
General.....	235 86	
Transactions to members.....	6 89	
	242 75	
Expressage	94 23	
Miscellaneous	203 00	
	6,872 67	

Balance on hand November 15, 1912.....	\$821 54
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Exhibition Fund :—

Total receipts.....	\$1,413 50	
Expenditures	1,221 14	
Balance	\$192 36	

Balance on hand November 15, 1912.....	\$821 54
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Exhibition Fund—Balance.....	192 36	
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General account—Balance.....	629 18	
	821 54	

AUSTIN McLANAHAN,
Treasurer

EXECUTIVE OFFICE ACCOUNT**November 16, 1911 to November 15, 1912****Dr.**

Balance November 16, 1911.....	40	
Received from Treasurer to November 15, 1912.....	385 00	
	\$385 49	

Cr.**By expenditures for—**

Postage and stationery.....	\$100 45	
Clerical help.....	59 58	
Office supplies.....	43 87	
Books, etc.....	2 02	
Multigraphing and typewriting.....	32 50	
Expressage and telegrams.....	49 91	
Miscellaneous, carfare, janitor service.....	78 13	
Exhibition	13 04	
	379 50	

Balance on hand November 15, 1912.....	\$5 99
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GERTRUDE B. KNIPP,
Executive Secretary

*ADDRESS OF WELCOME

HON. NEWTON D. BAKER, Mayor of Cleveland

Mr. President, Ladies and Gentlemen:

I examined with some care the proceedings of the last annual meeting of this Association, and was agreeably entertained upon observing that in one section where an elaborate program was outlined for the work—the maker of that program suggests various officers and officials to study different parts of the work; an extremely effective organization was suggested, and this entertaining addition was made, that to this there should be added “an ornamental committee of more or less prominent people.” So I realize that in addition to the serious work which a great society like this has to do there is the somewhat humble part of the layman to act as ornament to the work. Hence I feel tonight that my part in the program—ill adapted as I may be to the performance of it—is largely to supply my part of the ornament.

Yet I suppose—this introductory jest aside—no man who is a citizen, far less a public official, can regard himself as a layman in the work before this society. The Government of the United States and the various state governments, and perhaps even subordinate political agencies in this country, have spent enormous sums of money in the study of livestock, in disseminating information about the raising of animals and crops, and such things. I imagine there is scarcely a living animal except man that has been neglected in that dissemination of knowledge as to the betterment of the conditions under which it thrives. Very recently has the Government of the United States come to realize that a great part of its protective function is involved in the subject of child welfare. I know how very happy I myself have been, and I feel sure everybody shares that happiness, that there is now a department of the great general government, which is absolutely unlimited in resources, which devotes itself, and is organized to devote itself, to the study of the problem of the child. Mrs. Florence Kelley, who is a sort of guardian angel to childhood in this country, has upon every visit she has paid to Cleveland bewailed and lamented the fact that the general Government could not be stirred and stimulated to take an active interest in the problem of child life. And now that great need is being met, and a beginning has been made, the Government's face has been turned toward the child, and we

* Opening Session, Wednesday night, October 2, 1912.

look with great hope and delight to the work that is to be done there.

I imagine that, as a public officer, I have a peculiar right to be interested in the deliberations of this Conference, since one of the great problems of city government, one of the most pressing, most difficult of our problems, is the protection and care of, and the problem presented by, the delinquent and the dependent child. And this society, although it affects in its title to deal only with the problem of infant mortality, has so far enlarged its scope that every phase of child life, pre-natal and post-natal, comes within its range.

We have here a boys' home, which is one of the prides of our municipal heart. We have there about 140 boys. The Binet test applied to them shows all but five per cent to be defectives. Many of those children came to us as delinquents, and that shows the intimate relation between defect and delinquency. Many came to us as dependents, and that suggests the intimate connection between malnutrition, insufficient food and care and improper environment, which lead to delinquency and deficiency. So the whole problem of delinquency and dependency in a city, in its capacity as guardian of its helpless wards, is involved in at least part of the studies that this society was organized to make; hence the deliberations of this body are of very profound and stirring importance to those of us who are charged with any responsibility in the city government.

The city conscience has long been aroused to the child. In our American cities everywhere we have for years been making rapid advance toward placing the child in better condition, giving him a better opportunity to be born right, giving him better surroundings after he is born, protecting him against those adversaries and diseases which our ancestors regarded as unavoidable evils. The city conscience is aroused on that subject, and it is in the city most of all that these problems arise.

I suppose the whole theory of evolution and the whole doctrine that goes under that name is summed up in the notion that the perfection of the species is brought about by the survival of the fittest. But our civilization is such that we suspend that law of nature, and permit the unfit to survive. The life of human beings in civilized communities is no longer allowed to be an uninterrupted struggle in which the fittest survive by triumph over the unfit; but we contribute to the complexity of the problem by taking away from our city life some of the correctives that occur in simpler forms of society, thus not only suspending the law of the survival of the fittest,

but allowing conditions to exist which create the unfit. More unfit children are born in the city than would be born else where in a similar number of population on account of the congestion in the city in which city life immerses itself, because of the conditions which come from the proximity of so many people living in one place; the smoke nuisance, the grind and noise of the city which unseats the nervous balance of many people who do not know what is the matter with them. Because of all these conditions we have a tendency to increase the output of the unfit, and have at the same time, in a sense, interposed ourselves between the law of the survival of the fittest and its operation, and have suspended its operation. This puts the problem of the city and of mankind in a more difficult aspect, and the difficulty grows all the time. Now we are considering everywhere in the United States a process by which the perpetuation of the manifestly unfit strains, the reproduction of degenerates, can be suspended. In some states laws have been passed in which procreation by the unfit, by degenerates, imbeciles and habitual and confirmed criminals is made more or less impossible. All these subjects are interesting to us, not only on the human and sentimental side, but also on the economic side. In order that those who are fit might have a fair chance with the great burden that civilization imposes at best upon their efforts for success, we are coming to realize that, as an economic proposition, we ought not to burden the fit with the unnecessary burden of the unfit. So the subjects that this Association is organized to consider interest us from the human, religious and economic points of view, intertwining themselves practically with every other economic and public question we are called upon to consider. How could it be otherwise, then, than that the City of Cleveland, which, for the moment speaks through me, should be glad to welcome this conference? Of course, we are glad to have you here. Our citizens will have an opportunity to attend your meetings, and great enlightenment will result upon a subject as yet dark, where the light has for the moment only touched the periphery of our city.

But the great welcome that comes to you is not only from the city; it is from the feeble unseen, yet unborn, hands of little children that are to make future generations of human beings on this earth when we shall have passed away and whose well-being will be enlarged in great measure by the study and consideration which you are giving to their welfare.

On behalf of the City of Cleveland and—if I may be presumptuous enough to speak for these unborn generations—I welcome this society to the City of Cleveland.

***ADDRESS OF THE PRESIDENT**

**ORESSY L. WILBUR, M. D., Chief Statistician, Bureau of the
Census, Washington, D. C.**

Some of the Measures Most Urgently Needed for the Prevention of Infant Mortality in the United States

The American Association for Study and Prevention of Infant Mortality is now holding its third annual session. A multitude of topics relating to infant life and its safeguarding have been considered during the two previous sessions, and numerous resolutions, more or less expressive of the general belief and policy of this Association, have been adopted. Some of these subjects will come up for further consideration at the present meeting, and doubtless the usual number of new resolutions will be presented, a certain proportion of which will receive favorable action. I believe that for the satisfactory determination of many of these questions we should seek closer affiliation and union with all organizations devoted wholly, or in part, to work of a similar character. We need especially the aid of trained social workers, sanitary officials, pediatricists and vital statisticians. The same subjects upon which we are engaged are also dealt with by the American Public Health Association, the Section on Preventive Medicine of the American Medical Association, the Conference of State and Provincial Boards of Health, and other national organizations. The great National Conservation Congress now meeting at Indianapolis is devoting itself to the question of the conservation of the health and lives of the people, and I wish that a message might be sent by this Association, before the close of this meeting, expressive of our earnest desire to co-operate and of our feeling that the conservation of the lives and well-being of American babies and children is a paramount duty of the American people. We should be in the closest touch with all governmental agencies—federal, state and municipal—engaged in public health work. The recently established Children's Bureau, the head of which will soon address you, has among its most important duties the investigation of infant mortality and the birth rate. The United States Public Health Service is actively engaged, and all the results of the Bureau of the Census following its work of extending the area of registration for births and deaths in this country will

* Presented at the Opening Session, Wednesday night, October 2, 1912.

be of direct avail for the study and prevention of infant mortality. Every state and municipal service needs to be supported by an enlightened public opinion that will permit, and demand, the thorough enforcement of laws for the protection of the health of the people, and especially those that safeguard infancy and childhood. There is a wide field of action for all, and a union of forces will avoid much misdirected energy and secure better results.

One is impressed, when in attendance upon a meeting of this Association or in reading the records of its proceedings, with the great number of measures that are urged for the saving of the lives of infants. I confess that I am sometimes confused and bewildered among the conflicting opinions, and I have, therefore, thought that it might be useful if I should briefly summarize tonight some of the measures that seemed to me, as a matter of personal judgment, the most important and the most urgent in their claims upon our attention. My views are not to be taken as *ex cathedra* or as expressing the settled judgment of the Association. They will be subject to revision and correction as the result of the discussions at this and future meetings of the Association, and I have perhaps omitted some topics that would seem to be of the first importance.

THE PREVENTION OF INFANT MORTALITY DEMANDS THOROUGH REGISTRATION OF VITAL STATISTICS

I am sure, however, that I am not in error—and the resolutions adopted by this Association at each of the preceding meetings will support me—when I place first and foremost among the measures that are absolutely necessary for the prevention of infant mortality, and of unnecessary mortality at all ages as well, the complete and thorough registration of vital statistics.

I wish I could avoid the use of the term vital statistics. It has, perhaps, a dry and forbidding sound, and conjures up visions of dull reports full of pages of interminable figures. Few of us delight in figures for their own sake, and we all know that figures, used improperly, may be very misleading. Nevertheless, vital statistics have been called the "bookkeeping of humanity," and they are just as essential to the understanding of any problems in which human life is concerned as the keeping of exact accounts to the conduct of any well-ordered business. How many concerns would fail if they kept no books? How can we expect to understand the in-come and out-go of human life if we keep no exact records of its move-

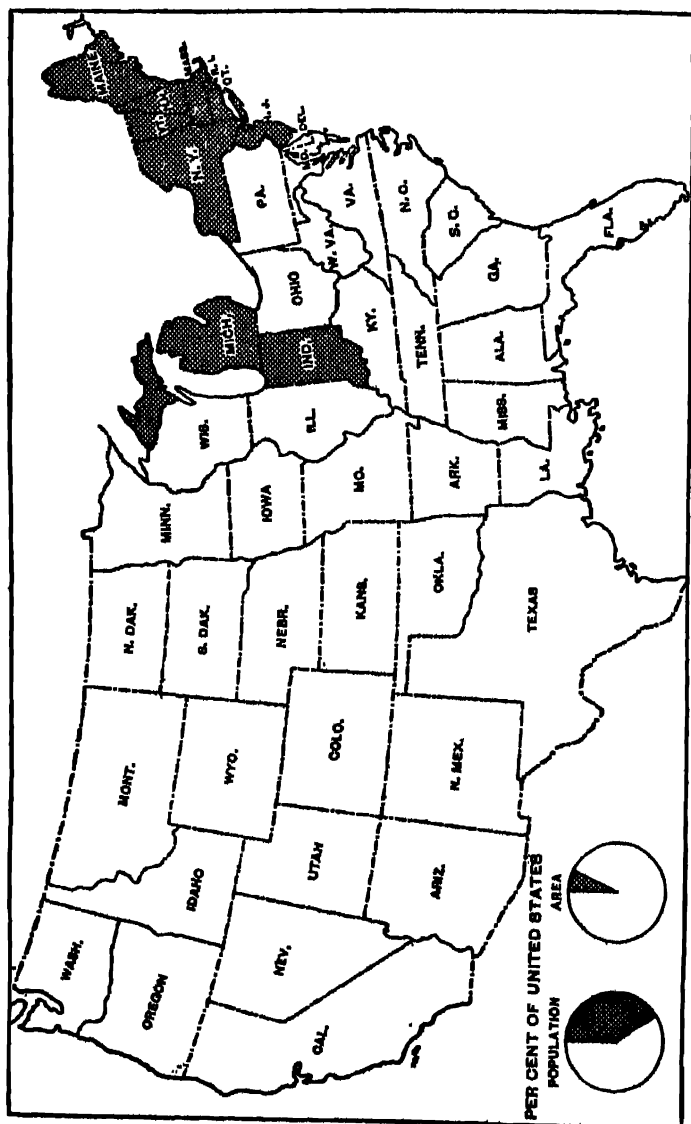
ment? Is man less valuable than merchandise, and are births and deaths less to be reckoned than receipts and expenditures in our state and city records? Let us rather emphasize the word *vital*, and recognize the necessity of correct *vital* statistics as absolutely necessary to the vital or living interests of the individual and the city, state and country in which he lives.

Vital statistics are based upon records of births and deaths. Stillbirths are registered, under the law of Ohio and other states that have adopted the "Model Law," both as births and as deaths, but for the purposes of statistics they are compiled separately, so that the births include only children born alive and deaths are exclusive of stillbirths. Marriages and divorces need only be mentioned as of minor importance for our immediate purpose, and statistics of morbidity, which would be of very great value, are almost utterly wanting. What is the condition of birth and death registration in the United States? In Ohio? In Cleveland?

"It certainly is both strange and shameful," as the Director of the Census has remarked, "that the United States should be so far behind the other leading countries of the world in the registration of deaths, and even more so in the registration of births." The United States is the only civilized country in which there is no general and complete registration of births and deaths. We can turn to the international statistics and ascertain the birth rates, death rates, and rates of infantile mortality for all the countries of Europe, of Australia and of Japan, but for the United States we know only the death rates of the so-called "registration area for deaths," comprising less than two-thirds (63.1 per cent) of the total population of the country, and the birth rates of the still smaller "provisional birth registration area" of less than one-quarter (24.2 per cent) of the total population. And the extension of accurate or fairly accurate registration of births and deaths, which is dependent upon the adoption of proper legislation and its thorough enforcement by the individual states, has been a work of great difficulty. Still we are making progress, as you can see by comparing the map showing the present condition of the registration area for deaths with that in 1900.

In 1900 Ohio was not included in the registration area. True, the state had been attempting to collect vital statistics for over forty years, but the results were utterly worthless and misleading. Ohio, according to the reports of the State Board of Health, was a "black spot on the map," and for many years, despite the efforts of the public health authori-

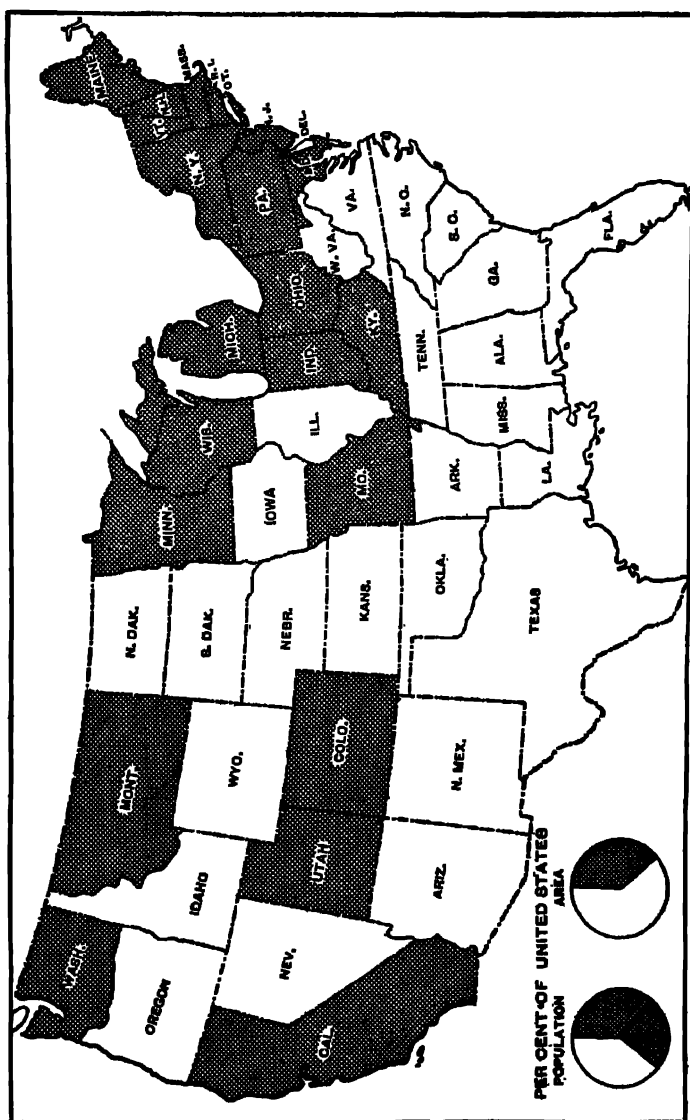
REGISTRATION AREA FOR DEATHS: 1900



NOTE—In addition to the registration States (shaded), returns were received from the District of Columbia (city of Washington) and 133 cities of 8,000 population and over in non-registration States.

REGISTRATION AREA FOR DEATHS: 1911

1911



NOTE.—In addition to the registration States (shaded), returns were received from municipalities of North Carolina (1,000 population and over), the District of Columbia (city of Washington), and 47 cities of 10,000 population and over in non-registration States.

ties, it seemed impossible to secure the necessary legislation. All this was changed, however, by the adoption of the act approved May 5, 1908, "To establish a bureau of vital statistics and to provide for the prompt and permanent registration of all births and deaths occurring within the state of Ohio." The organization of the registration service under this law was admirably conducted by the former State Registrar, Dr. F. L. Watkins (now Deputy State Registrar of Mississippi), and Ohio was admitted to the registration area for deaths for the year 1909, the first complete calendar year under the new law. By the adoption of proper methods—the Ohio law is the "Model Law" recommended by the American Medical Association, the American Public Health Association, and the Bureau of the Census, and in successful operation in many states—the result was thus reached in a single year that the state had failed to secure after over fifty years of futile effort—the first Ohio law was approved April 8, 1856—by means of assessors or otherwise. The registration of births, which is much more difficult than the registration of deaths, was also in the process of thorough enforcement, with the hearty approval and support of the enlightened medical profession of the state, and with the prospect that it would soon reach a standard that would warrant the acceptance of the returns by the Census. To show the marked improvement under the new law, the number of births (100,160) and of deaths (60,731) obtained for the first calendar year of its operation (1909) may be compared with the numbers (63,281 and 35,398, respectively,) for the last calendar year under the old law (1907). Nearly 40,000 births and 25,000 deaths that would have been unrecorded under the old law were thus registered under the new one.

The prospect seemed bright and the example of Ohio was being cited far and wide as a harbinger that success was at last coming to the efforts to secure adequate registration of vital statistics for the United States, when, alas! a most grievous blow to the progress of registration was dealt by a decision of the Ohio Supreme Court. It is necessary, of course, to enforce a registration law if the results of its operation are to be of value. The great majority of physicians and midwives, upon whom had devolved the duty of filling out a birth certificate for each child upon whose birth they were in attendance, had found no difficulty in complying with the law. All the particulars required upon the Standard Certificate of Birth are necessary for purposes of legal record and as affording important data for the study of infant mortality and other subjects of vital statistics. There is usually

no difficulty on the part of the physician or midwife in securing this information by simple inquiry while in professional attendance, and much of it, in fact, was required to be kept by them in a registry, and to be reported to the county clerk under the original Ohio law of 1856. Nevertheless, it was held by the Court that certain sections of the law, "so far as they relate to a physician or a midwife, in attendance upon a case of confinement, are unconstitutional and void, because they were enacted by an unnecessary, unreasonable and arbitrary exercise of the police power," (*Ohio v. Boone*, 84 O. S. 346), and in a subsequent opinion, upon rehearing, the items to which the Court specifically objected are pointed out. It may be of interest to quote from the original decision:

"In short, a professional attendant at a birth is required to enter upon an inquiry as to non-professional questions, to supply information to, it may be, a non-professional official, 'clothed with a little brief authority,' in relation to matters which perhaps are interesting as vital statistics, but as to which it requires more than appears in this statute or in the arguments in this case, to show that they are necessary, or even closely related, to the public safety, the public morals or the public welfare; an inquiry too which could be just as well and more appropriately conducted, reported upon and certified to, by the local registrar, or a township assessor, or a census taker."

Crippled as it is by this decision, the State Department is nevertheless endeavoring to secure some degree of enforcement of the law, and the results have not been as disastrous as might have been expected. In a paper on "The Importance of Complete Birth Registration," ¹Dr. A. C. Holland, State Registrar, says:

"In the Supreme Court decision to which I have referred, Ohio took a decided backward step, and since that time I have been bending every effort to secure as nearly as possible complete registration until such time as the law can be amended. * * * I have appealed to the local registrars in the state, and they have responded loyally. I have also appealed to the medical profession, and the response has been very gratifying. Wherever I have found a physician who objected to filing his certificates of birth I have either written directly to him or had the inspector of the department call upon him. In practically all instances he has given the most courteous treatment, and has agreed to assist in the work of collecting and compiling statistics of birth."

¹ Monthly Bulletin of the Ohio State Board of Health, July, 1912.

Certainly Ohio cannot afford to take a retrograde position, nor to desist for a moment in the effort to obtain a complete and reliable registration of the births of *all* her children. We know the vast importance of the statistics of infantile mortality, which are necessarily based upon the records of births as well as of deaths, and I believe that full consideration will show that it is within the power of the state to secure the information by the means, and the only means thus far found available, by which such data are secured in other states. The suggestions of the Court as to the possibility of securing the facts by assessors or by census takers may be considered impracticable. The experience of Ohio in collecting vital statistics by means of assessors, as conducted for nearly forty years under the law of 1869, should be sufficiently conclusive as to the utter worthlessness of this method. Census takers are nearly as inefficient for this purpose, as is indicated by the fact that the Federal Government, after many attempts, has utterly discarded the plan of using them to collect vital statistics. Ohio is entitled to modern methods of efficiency, and I trust that the next session of the legislature will make such amendments to the present law as may be required to secure thorough and complete registration of all births in the state. Nothing will have a more far-reaching beneficial effect in the reduction of infantile mortality.

MOTHERS SHOULD NURSE THEIR BABIES

A baby's chance of life is perhaps three times as great if nourished upon human breast milk as if fed by artificial means. Nothing should be suffered to interfere with maternal nursing, and the necessary aid should be supplied to indigent mothers so that their babies may not suffer. No conditions of employment should be allowed to interfere with this duty, and, with the well-to-do, it should be regarded as a crime to put off the baby upon artificial food when the mother is capable of nursing it. And very few mothers are not, if encouraged to do so rather than persuaded, by complaisant medical opinion, to neglect their duty. Doctor Jacobi, the dean of the American medical profession, in his presidential address on "Infant Mortality" before the American Medical Association at Atlantic City in June, said:

"The attentive doctor and the diligent midwife know that our women, poor and rich, suffer from no organic mammary degeneration. Large and small breasts can be educated into competent milkers. They can be roused into action after

days and weeks of comparative inactivity, and into renewed efficiency after a recess of one or more weeks. It is quite well known, what I have alluded to, that the very suckling of the baby is the best educator of the breast. * * * It is true, not every baby can be nursed, but the exceptions are scarce. One was born of a mother who died of sepsis carried in part by a dirty midwife, or by an infected or ignorant doctor. * * * Every case of death of sepsis in the mother should burn hell into the conscience of whoever permits it nowadays; every case of death from lack of breast-milk should cause a trial for homicide against a doctor or midwife, or mother."

Think of it! A mother tried for homicide for failing to nurse her child when she could readily have done so! We should be very careful, in our work for milk stations, that breast-feeding be insisted upon rather than means for supplanting it be afforded.

An acquaintance of mine told this little story about a seven-year-old boy who brought her vegetables. One day he looked up and, with a very serious countenance, said: "You know it was very sad when my little brother died. Poor milk; hot weather; bottle baby." He had summarized the chief causes of infant mortality.

ALL (DOUBTFUL) MILK SHOULD BE PASTEURIZED.

Practically all milk in our city milk supplies is "doubtful." And, as with a man of "doubtful" character, the doubt usually means *bad*. A majority of the Commission on Milk Standards appointed by the New York Milk Committee reported in favor of the pasteurization of all milk, whether certified or not, and certainly all milk except that of the highest certified character should be pasteurized, under the strictest regulations to secure the destruction of the bacteria causing diseases transmissible by milk and for its subsequent care. The resolution adopted by the Executive Committee, to whom the subject was referred by the Association at the last meeting, is as follows:

Resolved, That until city and state health departments can better control the production, transportation and marketing of milk the adequate pasteurization of milk be recommended under municipal, state or federal control.

As this resolution was not acted upon by the Association as a whole, I think it ought to come up again at this meeting for the sanction of the Association.

I wish it were not necessary to pasteurize milk. We would prefer our milk fresh and pure from the dairy—an abundant supply of properly produced and handled milk that would warrant certification for the use of children. But this we do not have at present in cities, nor are we likely to have until Doctor Evans brings in the cows to urban residences. The deadly character of ordinary city milk is not appreciated by many, and the precautions taken are sometimes regarded as unnecessary or faddish. Here is an extract from a debate in an important legislative body:

"Now, this information that we have, a great deal of it pure fad-ism, is right. When I was a boy in the country they went to the cowpen, milked the cows, and the children drank the milk before it was cool. These children grew into sturdy men, and lived to a ripe old age; but in these cities now they must sterilize the milk, then bottle it and seal it with great care, but the children who drink it die before they are six years old. (Laughter.) Mr. President, that does not appeal to me very much."

STANDARD RULES FOR THE CONTROL OF MILK SHOULD BE EN-
FORCED WITH FULL PUBLICITY WITH RESPECT
TO GOOD AND BAD MILK SUPPLIES.

One of the most important documents ever presented from the point of view of prevention of infant mortality is the Report of the Commission on Milk Standards of the New York Milk Committee, a voluntary association working in the interests of improving the milk supply of New York City. The Commission was made up of representative experts from all parts of the country, and its recommendations may form the bases for local regulations for any city or town in this country. There is great need for uniform standards, a rigid inspection service, and full publicity of results, so that the public may know how to obtain good milk, and how to avoid unsafe milk. As the Commission states, "the dealer is immediately classified by milk standards, either into a seller of first-class milk or a seller of second-class milk, and such distinction gives to the seller of first-class milk the commercial rewards which he deserves, while it inflicts just penalties on the seller of second-class milk." Ample laboratory facilities should be provided, and the results of analyses should be published in the weekly or monthly bulletins of the city health departments, with the names of the dealers, lists of permits revoked or renewed, and the results of prosecution for violations of the regulations.

This is already done to some extent, as, for example, in the Weekly Report of the Board of Health of Cincinnati. Full publicity protects the public health, while a mere list of analyses without names, but with merely key numbers for office reference, practically amounts to a conspiracy of silence with the men who furnish filthy and unsanitary milk. The newspapers will aid in the work of publicity more and more as they understand the necessity of protecting the interests of the consumers and the lives of the children.

PHYSICIANS SHOULD RECEIVE BETTER TRAINING FOR THE PRACTICE OF OBSTETRICS

A considerable amount of unnecessary infant mortality, as well as many unnecessary deaths of mothers from puerperal sepsis and other preventable causes of death incident to childbirth, undoubtedly arises from ill-taught, ignorant or careless medical attendants. The shocking condition that obtains in this country today is rightly characterized by the Chairman of the Section on Midwifery as "appalling," and the investigation by Dr. J. Whitridge Williams, which appeared in the last report of this Association, has arrested the attention of the medical profession throughout the land. Reforms cannot be brought about in a moment, but I believe that the beginning of better things will date from this exceedingly important contribution to our Transactions. It is supposed that about one-half of the cases of labor in this country are attended by midwives, the proportion being usually very high in cities. A majority of the teachers who replied to Doctor Williams believed that "general practitioners lose as many, and possibly more, women from puerperal infection than do midwives." A terrible indictment in these days of asepsis! And, further, "more than three-quarters of the professors of obstetrics in all parts of the country, in reply to my questionnaire, state that incompetent doctors kill more women each year by improperly performed operations than the ignorant midwife does by neglect of aseptic precautions." When ignorance is safety, 'tis folly to be wise!

The present condition amounts to a national scandal upon the medical profession, which, if the facts are as represented, has grossly neglected one of the most important duties intrusted to it. Nothing is more sacred than the responsibility for two human lives in the most touching and appealing condition of helplessness. The practice of obstetrics should be raised to the level of the practice of surgery and medicine,

better teachers should be supplied, and the amplest clinical facilities provided by all institutions that are permitted to confer medical degrees. Maternity hospitals and dispensaries are a most pressing need, and the state examinations should begin to weed out at the start, before they are permitted to enter upon practice, the ill-taught or otherwise unqualified.

MIDWIVES SHOULD BE INSTRUCTED AND CONTROLLED, WITH OR
WITHOUT A VIEW TO THEIR POSSIBLE
ULTIMATE ABOLITION

The question as to whether midwives should be instructed and regulated, ignored or abolished is a burning one. As in the matter of pasteurization of milk, there are earnest advocates on each side, but it seems to me that the urgent present requirements of infant life-saving and greater protection to the multitude of mothers who will be confined in the years immediately to come under the care of midwives in all our great cities should govern our present judgment.

Doctor Huntington² finds that German obstetricians are doubtful of the worth of the advanced midwife system of that country, while in England the obstetricians, who advocated the measure, regret it, "for they find that England is satisfied with the midwife instead of the physician, which must steadily make for a lower obstetrical standard, while the general practitioner is pleased and, most important of all in my judgment, *"the general community is probably better off, because midwives were numerous and very dirty, and now they are, comparatively speaking, clean."*

This would seem to me to settle conclusively the advisability of the movement to make the midwives now actually in practice keep clean, and to give them some instruction, however limited, that will help them to do a little better the work that they will do otherwise in filth and utter ignorance. If the general community is bettered, and the medical profession in great part approves the change, I do not think that the apprehension in regard to a lower obstetrical standard should interfere with prompt, necessary action—even emergency action, for if a few hundred deaths from plague were in question, not tens of thousands of deaths of babies and their mothers, there would be no doubt as to the expediency of the expenditure of any amount of money and pains to put matters on a better footing.

² Paper on "The Regulation of Midwifery" before the Conference on Infant Hygiene, Philadelphia, May 22, 1912, by Dr. James Lincoln Huntington.

The midwife is not an American institution, but the midwife has come to us with the masses of foreign-born population, and the midwife will stay with us until, in the gradual process of Americanization of the immigrants now here, and the millions of immigrants that will come in the immediate future, a higher price will be given for greater obstetrical skill; and the skill itself, if the projects for reform in obstetrical teaching succeed, will be available.

The medical profession cannot afford to stand on its dignity in this matter, because it involves human life. There will be a demand for well-trained obstetricians, and the grandchildren of many of the recent immigrants who now employ midwives—in accordance with the general custom of their fatherlands—will demand the services of the best American doctors. Midwives should be registered as a necessary means for their control and regulation, and to insure the prompt return of certificates of birth. The registration of physicians, midwives and undertakers is required by the Model Law for the registration of vital statistics. This means simply the filing of the name, address and occupation with the local registrar of the district in which he or she resides, or may hereafter establish a residence. Thus a complete list of all persons practising midwifery may be kept up. Entry upon such a list is not equivalent to the granting of a permit or license to practise, whereby the state in any way indorses the qualifications of the persons thus practicing. This is another question. Whether a permit is granted or not, systematic inspections should be made with reference to condition of obstetrical equipment, knowledge of rules and regulations, and prompt enforcement of the penalties of the law should follow failure to register a birth, neglect in using the required preventive of ophthalmia neonatorum, in reporting fever or other complications, or in conforming to the rules in force. Midwives should not be permitted to register the deaths of stillborn children nor, of course, any deaths at all. They should be required only to register the births of the children that they attend.

There were other subjects of importance to which I had intended to refer, but the paper is already exceeding its proposed limit, and I shall merely mention the care of expectant mothers, the aid of visiting nurses and trained social workers, the special guardianship that the state should exercise over children born out of wedlock and their mothers, continuation schools of home-making, sex hygiene, and the great subject

of race culture or practical eugenics. I come finally to a subject which is at the root of our national existence, and which involves the preservation and continuation of the ideals of the America of today and their ultimate expansion, should we think it worth the while, in the greater America of the future.

FOR OUR CHILDREN'S CHILDREN

America in one sense is a geographical expression. There will always be Americans, although very possibly in a few hundred years—which I trust will be a short era in the life of the Republic—there may be but slight admixture of the blood of the generation that inhabits the United States today. We are all immigrants or the descendants of immigrants, from the early settlers in Colonial days to the latest arrivals at Ellis Island. For many years, however, the amount of immigration was slight, and the country grew chiefly through the natural increase, or excess of births over deaths, of its native population. During the early years of the Republic and up to the time of the Civil War, the decennial increase of population was in the neighborhood of 35 per cent, although the total amount of immigration was only about five millions, as compared with about twenty-five millions since. The rate of increase has fallen until, for the past two decades, it was only about 21 per cent. There is no danger of our becoming depopulated, however. The United States will soon become a hundred-million country. No one knows the exact birth rate on account of our neglect of the registration of vital statistics, but it probably lies between 25 and 30 per 1,000. This would mean from 2,500,000 to 3,000,000 births each year, and shows, incidentally, the great magnitude of the task of this Association, namely, to save as many of these babies' lives as possible without regard to race, color or previous condition of their parents. No one knows the exact death rate of the United States, but a favorable assumption, based on the rate of the registration area for deaths, would be at least 15 per 1,000, or 1,500,000 deaths per annum. We have thus a surplus of births over deaths of 1,000,000 and upwards each year, and with the aid of the continuing, and perhaps increasing, immigration we shall be able to show a total increase in 1920 fairly comparable with that of the preceding decades.

The old American stock has ceased to be prolific, at least in the Northern States. We are unable to measure exactly the decline in the birth rate in this country, on account of the general lack of effective birth registration, but undoubt-

edly it has declined to a considerable extent, and is sustained at its present height chiefly by the higher birth rates of the foreign-born and their immediate descendants. Some statements on this subject are, of course, unwarranted, as, for example, the declaration that the birth rate has diminished one-third in the past five years. It is not likely that the birth rate will entirely vanish, even in centuries to come, but if it continues to diminish its curve will approximate closer and closer to the zero line. The phenomenon of a diminishing birth rate is common to all the principal European countries, and also, strange to say, to the great sparsely-settled continent of Australia. That of England and Wales fell from 33.5 per 1,000 for the five-year period 1881-1885 to 26.2 per 1,000 for 1906-1910, a decline of 22 per cent in a quarter of a century. Of course, if it continued to decrease by the same amount each twenty-five years, the rate would vanish entirely about the year 2000. The proportions of births per 1,000 wives aged 15 to 45 years decreased 17.7 per cent in England from 1880 to 1900, 19.7 per cent in France, and 24.5 per cent—nearly one-fourth—in Australia. European demographers, especially those of France, are alarmed, and Australia appointed a special commission to investigate the decrease of the birth rate.

In the United States comparatively little serious attention has been given to the subject, which has been largely laughed out of court by the humorous press paragraphs on "race suicide." There is little incentive to warn the American people against the fate of family and race extinction, which they are apparently quite willing to accept as an evidence of superior culture. The limitation of offspring and the social and economic causes behind it seem certain to progress still farther before we come to a turning of the ways. Children are not wanted in most American families, at least beyond a certain limited number. It is both foolish and unfashionable to rear many babies. Many young American parents, who in their hearts desire more children, and could well rear them, are moved by the fear of the ridicule and scorn of their friends to avoid any increase of family. The improvident poor are the only ones that can indulge in the luxury of babies. What with the high and increasing cost of living, it means large expense to bear children and raise them in America these days. Dr. William F. Snow, Secretary of the California State Board of Health, in an article in his Bulletin for November, 1910, on "California's New Industry, Growing Humans," estimates that "the cost of growing one human for the first twenty years" amounts to no less than \$4,150, while

the cost up to the end of the fifth year is \$600. This is based on what he thinks is the "best variety to grow—good, clean, American stock from ancestors who have been workers." This estimate may be excessive, but even if considerably reduced, it means a large amount of temporarily, and perhaps permanently, unproductive outlay. Children are no longer an asset as they were in the pioneer days of America, when large families were the rule, not the exceedingly rare exceptions; when every pair of hands, either of boy or girl, helped in the hard work of life which is now largely done by machinery. As far as labor is concerned, and even trained and educated labor to a considerable extent, we can readily import it, at the cost of a steamship passage, and with all the risk and cost of the unproductive years paid by the countries from which the workers come. Think of the vast increment of wealth that the United States has received in foreign-born workers at the most productive periods of life. Thus our cities are built and our railroads extended, our factories supplied with labor, and the great fabric of modern industrial life woven in a Joseph's coat of multi-colored nationalities.

American children are trained for the higher grades of labor, for clerical or professional "positions" often requiring continued expenditure by their parents far beyond the age of twenty years. They must begin on the same scale of living that their parents reached by perhaps many years of struggle. As "investments" they are highly speculative, and much of the burden of the care of parents is shifted by means of life insurance from their shoulders.

Some of the reasons for our no longer desiring children are the greater demands for luxury and pleasure, and the inconvenience of children in the apartment-house mode of life. It is by no means a characteristic of the fashionable and wealthy class of society alone, but affects also the great middle class that is forced to keep up appearances on, perhaps, an insufficient income. Women are not more to blame than men, for the instincts of motherhood are still strong in the race. Even in the country—on the free, broad soil of America, "the land of opportunity" to the alien of every race--children are not wanted. I recently noted, in a leading agricultural journal, that out of 24 advertisements of married men for farm positions, the fact was stated in more than half (14) that they had few or no children: "Position wanted by experienced farm manager, married, no children;" "Farmer wants position, American, age 35, one child;" "Manager or herdsman desires position, married, no encumbrances," etc. Of the others nine were noncommittal, and only one boldly

announced himself as a "farmer with family." So the possession of a normal family hinders the obtaining of work in rural America.

One way to reduce infantile mortality would be to abolish the birth rate. Probably the fewer children born to the American family afford a much larger *proportion* (but not number) of survivors than did the larger families of the old days. Nevertheless, this reduction cannot be carried beyond a certain extent except at the cost of family and racial extinction. The inexorable rule of three demands that each married couple must at least produce three children—one to allow for the chances of early death or the failure to marry—if the race is even to remain stationary; and for growth and competition with more fertile races, the number of children must be more than three. Is it not our privilege, as members of this Association devoted to the saving of the lives of infants, to devote some attention to the cultivation of a greater demand for children in the American home? We are resolved that the preventable deaths of American-born children shall be diminished. It is our duty to see that the child murder that destroys thousands and tens of thousands of infants before birth shall cease. But the "lost legion" of the children that will never be born; that will forever be deprived of a birthright into happy American families and a chance for life in this "land of opportunity"—do we owe no duty to them, and no duty to the perpetuation of the best qualities of the citizenship of today? For it is precisely the best and highest element of the race that is most surely doomed to extinction by the progressive tendency to racial decay.

Whether we do or not, our present duty is urgent, even if purely altruistic. Though we may regret that we of this present generation shall not transmit the flame of life that we received from the beginning, and that the descendants of our own blood shall have no part or lot in the days to come, let us at least save the children of others and help to rear them so that their children and their children's children may be preserved for a share in the greater America of the future. When out of the "melting pot," with all of the happily blended qualities of the races now coming and yet to come, shall emerge the grandest of all races, the descendants in traditions and principles, if not the actual posterity, of the early Americans.

THE ASEPTIC REARING OF CHILDREN *

By JACQUES BERTILLON, M. D., Chief of the Bureau of Statistics,
Paris, France

Three parts of humanity are particularly predisposed to the microbic diseases, namely:

First—Wounded persons.

Second—Confined women.

Third—Babies.

When we recollect how useful the aseptic methods are to wounded persons and to confined women, we shall be surprised that these methods have never been seriously used for babies.

However, babies are much more predisposed to microbic diseases than the two other categories mentioned. Add the deaths by infantile diarrhoea to the deaths caused by the infection of the respiratory system, pneumonia and bronchitis, and you obtain three-quarters of the deaths occurring in the first year of life. The deaths by tuberculosis (of the brain or of the peritoneum) can also be classified as microbic. There are remaining only the deaths by dysgenic, hereditary or innate causes (infantile atrophy, syphilis, etc.). Against them asepsis is useless. Such a proportion of deaths caused by microbic diseases is not to be observed among wounded persons and confined women. Asepsis would be, therefore, much more useful to babies than to any other category of human creatures.

Now, however, they are neglected:

First, as to food.

Second, as to clothes.

Third, as to many other features of life.

ASEPSIS OF FOOD

Maternal nursing is recommended; it is recommended also to the mother to wash her nipple before and after each nursing. All that is right. But it is not a sufficient asepsis. The proof of it is that infantile diarrhoea, although not so frequent among children nourished by their mothers as among other children, is not rare even among these. Rigorous

* *Puériculture aseptique*.

† Opening Session, Wednesday night, October 2, 1912.

asepsis would remove it absolutely, as rigorous asepsis has absolutely removed purulent infection from wounded persons.

The nipple of the mother must be washed, but why shall not the mouth of the baby be rigorously washed? The milk remaining in his mouth will probably receive a noxious germ, and will be corrupted by it. This corrupted milk will be afterwards swallowed by the baby, and will cause diarrhœa. Therefore, it is necessary to wash the mouth of the baby after each nursing at least. That is always prescribed for adults when they are condemned to the lacteal diet. Why is it not prescribed for children? I can't understand this contradiction. Add that corrupted milk is much more noxious to children than to adults. I have heard that the absence of teeth is the reason why the quantity of milk retained by a baby is much less than by an adult. May be. But some milk is, however, retained, and that is an evil; milk is a substance eminently corruptible, and the mouth a place eminently corrupting.

Therefore, it must be prescribed to take a little syringe filled with water (preferably alkaline and sugared water), and throw a little jet of water into the four corners of the mouth. The baby will swallow this water mixed with milk, and the mouth will be cleansed.

Why is alkaline water preferable? Because the mouth is normally alkaline. And why sugared water? It is for a psychological purpose; if the mother or nurse forget, by mistake, to cleanse the mouth of the baby, the baby will not forget to claim his sweet, and to scream out until he obtains it. I expect he will be much more exact than his nurse.

The mouth of the baby requires to be washed not only after each act of nursing but also when he vomits a quantity of milk.

The cleanliness of the mouth is still more necessary when the baby is nourished with a bottle. I think the sterilized milk is much preferable when it is prepared in a milk laboratory than when it is prepared at home. This preparation is a very long and very delicate one, and the families, even the most careful, are not able to prepare it in good condition. Even the milk laboratories are not always successful; from time to time a bottle is imperfectly sterilized. To protect against this evil it is sufficient to keep the bottles at least fifteen days before using them; if a bottle contains any germ after this time the milk will be so corrupted that the nurse, even the most stupid, will refuse to give it to the child. I much prefer a disgusting milk to a milk in which the corruption is beginning and does not appear.

We have said how necessary it is to wash the nipple of the mother. It seems to me that this ablution is never complete. It is generally admitted that noxious germs can stay not only on the nipple, but also in the galactophorous canals. For that reason, to obtain from a cow aseptic milk, it is necessary to throw away the first jet of milk, because this first jet brings out the germs staying in the galactophorous canals. What is done for a commercial purpose can be, and must be, done also to preserve the life of a child. I propose, therefore, to prescribe to the mother that she must throw from her nipple a first jet of milk (this little quantity of milk will be lost) before she gives her breast to her baby.

ASEPSIS OF THE CLOTHES

This asepsis is practically unknown.

A baby requires an enormous quantity of linen. This linen is never sterilized. It is delivered to a laundress, it meets other soiled linen coming from an unknown origin; if it is washed at home, it is washed under deplorable conditions, even with the most improved machines.

Is there in the world one surgeon who would be so ignorant and so careless as to consent to apply such linen to a wound? If such an unfortunate should exist anywhere, he would be stoned to death by his colleagues, and probably persecuted as one who had murdered through imprudence or stupidity. A careful surgeon uses only linen scientifically sterilized and preserved in closed vessels. Why is it not the same for babies, since they are more subject to the microbic diseases than wounded persons? Will it be objected that their epidermis is intact? That would be, in many cases, an error. Besides that the umbilical funis leaves a wound during the first days of life, it is well known that the epidermis of a baby is often softened and becomes permeable. Very often in cleaves. Moreover, the noxious germs are absorbed not only by the skin, but also by the mucous membranes, and chiefly by the respiratory tubes. We ought not to expose the children to such a contagion; they need linen surgically aseptic, as much as wounded persons or as confined women. I claim, therefore, for them the use of asepticising autoclaves.

ASEPSIS IN OTHER FEATURES OF LIFE

Very often babies are entrusted to nurses for a walk in a public garden. The nurse immediately meets many other nurses, provided also with babies, in order to prattle during

long hours. During that indefinite garrulity babies have all the time to interchange their respective microbes. The little parliaments of nurses are, therefore, meetings of measles and of diphtheria. This evil must not be exaggerated; I believe, however, that it exceeds the advantages possibly derived from the nurse's conversation.

The infant asylums (in which women compelled to work can put their children by the day) can also become rendezvous of contagious diseases. I am myself president or vice-president of five such infant asylums (named *crèches* in French) in Paris. Accidents, indeed, don't occur, thanks to the care of our excellent nurses. The danger, however, is always present.

HOW CAN ORPHANS BE EDUCATED IN A QUITE ASEPTIC MANNER?

Perhaps a way absolutely different can be followed. I have compared babies to wounded persons and to confined women. Today a surgeon, generally speaking, does not consent to make an operation unless the patient is removed to a special house provided with all the necessary accommodations. The surgeon believes it impossible to obtain at home rigorous asepsis.

Perhaps it is the same concerning babies. At home rigorous asepsis is impossible.

I would not like to separate a baby from its mother, but it is for moral arguments, not for medical ones. The mother is more strongly attached to her child when she lives with him. It is true even for the father. (I speak with diffidence of the father).

But moral arguments can be put aside in the case of children separated from their parents by inevitable circumstances; for instance, orphans.

They can be educated with the rigorous asepsis required by surgeons for their patients in houses provided with all the necessary accommodations. Such houses would be composed of three parts:

A. One part for administration, heating, lighting and other general service. Everyone can go in or out of this first building.

B. Another part reserved to the disinfection and to the lazarettos described farther.

C. A third part reserved to the children and their nurses.

I begin with this third part of the supposed establishment. The children, classified by their ages, would receive at proper intervals the quantity of milk (aseptic, naturally) required. Their linen would be rigorously aseptized; and also all the

objects in contact with them or with their nurses. As air may also bear noxious germs, the air introduced into their room would be carefully filtered by passing through cotton. It would be kept at the temperature optimum.

The nurses, if possible, should be cloistered as nuns. If this proved impossible, they could have vacations as long as might be necessary, but as rare as possible. They should not come home again until they had changed their clothes, taken a disinfecting bath, and carefully cleaned their hair.

The children would not be admitted if they seemed tubercular or syphilitic. In all cases they would spend, before their admission, at least two weeks in observation in little lazarettos. There would be at least three lazarettos; the first for children presented from the 1st to the 15th of each month (they would be received in the rooms the 30th of the same month.) The other would be for children who had come in from the 15th to the 30th of the month. They would enter in the rooms on the 15th of the following month. The third lazaretto would not ordinarily be used for any purpose; it would only be used if one of the two others happened to be contaminated.

These would be the distinguishing features of the establishment which I propose as offering opportunity for rigorous asepsis, which seems to me indispensable for children. There is no apparent reason why children raised here should have any acquired malady (diarrhoea, pneumonia, bronchitis, contagious fever). Theoretically, they could only show diseases which they had gotten from heredity. Theoretically, then, their mortality would be nil. Just as the mortality of women in child birth who are properly cared for has become theoretically nil.

I think that the experiment is worth trying. It could be commenced for the benefit of children who are at present deprived of their family. For them industrial asepsis could only have advantages. As for children brought up in their families, they could not have so rigorous an asepsis. I ask, however, that all that is possible would be done for them also—washing of the mouth, cleansing of the mother's breast and of the galactophorous canals, the disinfection of their linen by steam, according to the rigorous antiseptic methods.

THE FEDERAL CHILDREN'S BUREAU

By MISS JULIA C. LATHROP, Chief of the Bureau, Washington, D. C.

Mr. President, Ladies and Gentlemen:

As you know, the Children's Bureau was authorized by the President of the United States last April, but, as a matter of fact, it is precisely thirty-nine days old tonight, as the bill providing for funds went into operation only on the 23d day of August. The Bureau's official staff consists of fifteen persons, and its appropriation for the first year for all purposes will be in the neighborhood of thirty thousand dollars. So you see it is not a very large or powerful army with which to advance upon the work which the law authorizes when it says that it shall be its duty to inquire into and report upon all matters pertaining to the welfare of children and child life among all classes of our people. It first seemed as if we ought to find some modest place of beginning, and I once thought infant mortality offered a modest beginning. I now doubt it. It is a great work in itself. But I do think it is a good place for a Government Bureau to begin, because it is certainly basal.

I wish to speak, from a lay point of view, of the ways in which the work of the Bureau connects with this subject of infant mortality, and with those expedients for knowing more about infant mortality and for lessening it, which we have in mind when we talk about birth registration, about making a public record of the advent of every baby who enters life in the United States. The Bureau is directed to inquire not only concerning infant mortality and the birth rate, but it must investigate orphanages, juvenile courts, desertions, dangerous occupations, accidents and diseases of children, employment and legislation affecting children in the several States and territories.

In the first place, we cannot know anything about the birth rate without knowing how many children are born. We cannot know about certain of the diseases of children in an intelligent way until we know how many children come into the world and know those facts about them which birth registration indicates. We want to know the advent of every child, so that we may bring to his aid the assistance of doctor and nurse; so that we may put an end in this country to the preventable blindness of the newly born; so that breast feeding

† Opening Session, Wednesday night, October 2, 1912

may be established, if possible, and the child, if its parents are handicapped, may be given the best practicable chance in the world. These are the immediate and social arguments for registration of births.

Perhaps we do not realize how closely registration of births is available for all sorts of social uses. A child who has a registration certificate, and knows by public record when his birthday comes, cannot be cheated of his share of schooling. And that is a most important thing. The question of the expedients for making that education adequate is not to be discussed here; but granting it shall be adequate, the most precious privilege of each generation is to see that the next one has a better education, a fairer chance, than the one before. So at the very beginning we want to know when these children shall come into the protecting circle of education, and how long they may legally remain there. The best way to keep them there longer is to know accurately when they can come in, and what they can do in the years assigned to them. We want to protect the occupations of children. Those of us who are acquainted with the questions of child labor know of the great temptation to sophisticate as to a child's birth if it seems advantageous that he should go to work. If there is a public record of his birth, we put an end to that. Do you realize that we are the only civilized country that has no registration of birth? Do you realize the reason why we have presumed not to have it? It is because we are a country of peace. If we were like the countries of Europe, compelled to keep up a standing army, we should have perfect birth registration instantly. But Heaven forbid that this country gain birth registration by that expedient!

I should like to tell you of a little incident that has come under my notice: A friend of mine knows a German who came to this country when he was four years old. His father was never naturalized. The lad grew up, never conscious of any irregularity, and nobody ever challenged his right to vote. He voted steadily, once each time, very respectably, was an excellent man, amassed a fortune in his business, and went back to Germany. He hadn't been in Berlin more than two hours before the police were after him because he was subject to military duty in the German Army. He telephoned to a German lawyer friend, who told him to leave as quickly as possible, and he slipped out. Always after that, in telling the story, he said he never breathed with such joyful relief as when he crossed the border into France. Thus one sees the effectiveness of birth registration at any rate.

"Peace hath her victories no less renowned than those of war!" We should give every human being who comes into the nation a public record of the fact of his birth, and that is only the simplest beginning of the victories of peace.

Another incident: To show the difference between the care with which we register births, and that shown by countries whence come to us those whom we are disposed to consider beneath our standard of education and wisdom. Some time ago Hull House became acquainted with a very poor family from Messina. They had been victims of the earthquake. The father had been entombed until he almost lost his reason. He thought constantly that "the walls were going to come in on him." Of the eight children the oldest girl had been at work. She was a little over sixteen—they said—but now she was out of work owing to the garment workers' strike. They were borrowing money to buy the baby's milk. They tried to get a certificate to let the next child go to work. Although they said she was fourteen, she seemed so retarded that the factory inspector refused a certificate. The Associated Charities were trying to help the family, and finally sent to Messina to find out, if possible, about the ages of these two girls. There came back an answer from the city of Messina stating that the record had been slightly disfigured by the vicissitudes of the earthquake, but it showed that the older of the girls, who said she was sixteen, was only fourteen, and the next one two years younger. So even the older girl had three months' schooling coming to her, and she was confiscated and sent to school, greatly to her distaste. The mother said the Hull House ladies must be dreaming to send such a big girl to school, soon to be married, too. As to the second child, adenoids were removed, good physical care was given her, and she was started out on the two years' schooling which was her legal due. If the Illinois State factory inspector and the school officials had at first applied to poor Messina to know how old those children were, the older child might have gone to school a couple of years and learned English, might still have worked two years at better wages, and then have married at the age of sixteen before reaching a spinsterhood too extreme for the Italian colony to tolerate.

Perhaps we do not realize how, to our foreign-born citizens and their children, the legalized birth certificate of the country is really an asset in securing inheritance and making sure of identity in various ways. There was a young man who wished to take a degree in a German university. His birth certificate was demanded. He was very much chagrined because he

could not furnish it. He could only prove, at the most elaborate expense and through the most ornate communications from the Secretary of State, that he had been born. I think we could get birth registration in this country in twelve months if the women of the country want it. What we need is a humble sort of thing that even the laity may help secure. We need to advertise. One type of advertising has been begun in the most brilliant way by recent exhibits. The one made by this Society in Washington last week at the Congress of Hygiene and Demography was an especially good case in point. Its clever pictures, its clear persuasive legends, the whole pleasing arrangement, would make anybody stop running to read. Some states have a railroad car with an exhibit in it going up and down the land. Think of a car, with a trained nurse and moving pictures, with literature to distribute, and a simple, sensible, friendly explainer—could it not do a great deal in the way of propaganda for many other wholesome ends besides birth registration?

Some people have been afraid that this Bureau would be some distant autocratic sort of machine which would dull local activity and interest in children, and which would override the dignity and the rights of parents. This Bureau will be nothing of the kind; it never can be so long as it proceeds in that spirit which recognizes as the most important and precious thing in the world, parental affection and care for a child.

Everybody agrees that what this movement needs is publicity, and there are some cheering signs that the baby and his welfare have become that highly technical something called news, instead of being taken for granted. Some years ago a young married woman began a series of beauty articles in a Chicago paper, writing them with such spirit and charm that they were almost literature and had a vogue. One day she came to the managing editor and said: "I have a baby, the most interesting creature in the world. Don't you think that women would be more interested in knowing about how to take care of their babies than how to make themselves look pretty? Don't you think it would go if I changed our beauty column to a baby column?" The editor smiled cynically and said: "Try it, but a baby is not news." Her venture proved a failure, and the young writer was compelled to return to Beauty Hints, somewhat embittered to discover that a baby was not news.

Such a story would have a different ending now. Throughout the country various important journals are engaged in

baby-saving campaigns of their own. The very fact that a campaign for milk or ice, or a sanitarium for babies, or columns of advice to mothers, are found valuable from the advertising standpoint, is only a complete proof of the fact that the baby has become news. Wonderful methods of advertising are being invented. The child welfare exhibits of New York, Chicago and other cities have finally resulted in the New York Child Welfare Committee, whose purpose is to go from city to city surveying the actual conditions affecting babies and children in each town, and assisting in the organization of exhibits which shall show how babies should be cared for, and where the conditions of any given town could be improved. The Russell Sage Foundation has been making studies of infant mortality, and has even entered the field of drama, with a moving-picture film to illustrate the fate of the baby who has to take his chance in an institution as compared with the baby who is tenderly cared for at home. The Health Department of the City of Chicago is calling to its aid the kindred arts of drama and painting, its pure milk bulletins are embellished with drawings, and it, too, has begun a series of moving-picture dramas, the first of which illustrates the difference between the solicitude bestowed upon the pedigrees of babies and of pet dogs.

It is said that in some localities the advertising for certain proprietary foods for babies has been so skillful and alluring that mothers have humbly, but mistakingly, withdrawn in favor of these highly advertised compounds. When we see what the power of advertising is, we feel that we must grasp it for the very best and most constructive uses. Is it not possible that, having the right on our side, we can exercise enough ingenuity to make the best methods of caring for children the most popular methods, to make Mother Nature more fashionable than patent foods?

Of course, the laity must always depend upon a backing of scientific wisdom for its justification. But in this case the physicians and scientists have given the justification, and now the next work in the great world-wide effort to save babies' lives is publicity—advertising, if you please—and this is a work for us to carry on while the scientists and the physicians are in their laboratories discovering more facts for us.

* ADDRESS

EUGENICS: THE REARING OF THE HUMAN THOROUGHbred

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Eugenics is defined by its founder, the late Sir Francis Galton, as "the study of the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally." In his earlier lecture before the Sociological Society of London on May 16, 1904, Galton spoke of Eugenics as "the science which deals with all influences that improve the inborn qualities of a race; also with those that develop these to the utmost advantage."

Sir Francis Galton, a half-first cousin of Charles Darwin, was born in Birmingham in 1822, the same year with Louis Pasteur and Gregor Mendel. The word "eugenics" was first used by Galton in his book, "Inquiries Into the Human Faculty," published in 1883. Eugenics, literally the science of being well born, or racial hygiene, as it is called by Salleeby, is thus one of the very newest sciences.

The idea was, of course, not new to Galton. Just as the idea of Evolution was not new to either of the contemporaries, Spencer, Wallace or Darwin, who almost at the same instant glimpsed the truth of an organic progress through struggle for existence and a survival of the fittest, or by natural selection; but had been suggested, at least to Darwin, by Malthus' book on Population, and can be traced in germ back through the writings of Darwin's grandfather, Erasmus Darwin, and his contemporaries, Treviranus and De Candolle, to whom it had probably been suggested in the works of the philosopher Buffon, back to Lucretius and Empedocles, and finally to the early Greek philosopher Anaximander; so the idea of "good stock," "noble blood" and "fine breeding" may be discerned in more or less clear form in almost every age. The idea is clearly stated in Plato's Republic—and it is a historical fact that, whatever the state of biological science in the time of the Spartans, these noble people, in crude, but effective, form, practiced the art of eugenics until the time when their best youth was too largely sacrificed to the God of War.

It was not, however, until Louis Pasteur had announced the results of his studies of micro-organisms, and had made

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clear their relation to man as a part of his environment, working in some cases for good, in others for mortal ill, and emphasized their importance with respect to the welfare of man; nor until the unassuming Austrian monk of the cloister at Brünn had had rediscovered the results of his experiments in hybridizing peas, that any real and certain advance could be made in the science of eugenics. The sciences of bacteriology and genetics, or the physiology of heredity, had to be born before certain steps could be taken in the control of human evolution.

The science did not get the early start that it might have had. Mendel's paper, published in 1865 in the Transactions of the Natural History Society of Brünn, was neglected until the same results were simultaneously rediscovered in 1900 by Correns, of Leipzig; Tschermack, of Berlin, and De Vries, of Amsterdam. Search of the literature then revealed the fact that Mendel, almost forty years before, had reported the same facts. Of course, ample recognition has since been taken of Mendel's work, and fitting respect has been paid to the man in essay and memorial, and in the erection of a statue in his native town of Brünn, and in naming the particular type of heredity he discovered, alternate or Mendelian inheritance.

Galton was meanwhile laying the foundations of eugenics in the preparation of his book on "Hereditary Genius," published in 1869. This work also was for many years neglected. Pasteur's work and the rebirth of Mendelian Heredity gave renewed impetus to the bio-social study of man. With renewed zeal and interest Galton returned to the work in the interests of Eugenics in 1901, when he delivered the Huxley lecture of that year before the Anthropological Institute of London on "The Possible Improvement of the Human Breed Under the Existing Conditions of Law and Sentiment." Then the science of Eugenics leaped into prominence. Pasteur, who laid stress on the importance of the factor of environment with respect to man's well-being; Galton, who emphasized the importance of the factor of heredity to this end, and Mendel, who stated the law of the inheritance of organic characters, thus laying a scientific foundation for the social direction of human evolution, had now received a universal hearing.

It is not too much to say, I believe, that the idea of eugenics, based upon the science of genetics, will work the greatest social revolution the world has yet known. Closely related to the concept of evolution, which has left its impress

on every department of human thought, the idea of eugenics can hardly be compared with it in the pregnancy of its promise, the immensity of its scope, and in the serious import of its reception or neglect for the future trend of nations. It aims at the production and the exclusive prevalence of the highest type of physical, intellectual and moral man within the limits of human protoplasm.

Before discussing the foundations and data, and attempting an interpretation from several standpoints, notably social and economic, let me merely mention its organs for research and propaganda.

First in point of time, and I believe in point of value of its scientific output and service, is the Galton Eugenics' Laboratory of the University of London, endowed, in part, by Galton himself, and under the directorship of Karl Pearson, Professor of Applied Mathematics, and the author of the well-known Grammar of Science. The Eugenics' Education Society, of London, with offices in Adelphi, issues quarterly the *Eugenics Review*, a most valuable periodical. Under the influence of these two institutions Eugenic Societies have been formed in almost every large city of the British Isles. Numerous public lectures are also maintained, and pamphlets published. From the Galton Laboratory issues almost monthly some valuable memoir by one of its fellows or scholars, embodying the results of some practical eugenics' investigation, e. g., effect of parental alcoholism on physique and intellect of the offspring; effect of employment of women on infant mortality; the effect of factory legislation on birth rate, etc. The Drapers' Company Research Memoirs must also be mentioned here as most valuable contributions, mostly by workers in the Galton Eugenics' Laboratory. These several organizations and their organs and representatives have made numerous, thus far mostly unsuccessful, attempts to influence Parliament for the passage of legislation, e. g., legislation relating to Poor Laws, Child Labor, Factory Laws, Marriage Laws, etc., fully concordant with eugenic principles.

In America we have the Eugenics Committee of the American Breeders' Association, founded in 1903, with President David Starr Jordan, of Leland Stanford, Jr., University, as its chairman, and Professor C. B. Davenport, Director of the Carnegie Station for Experimental Evolution at Cold Spring Harbor, L. I., as Secretary. Its official organ is the *American Breeders Magazine*, a quarterly which publishes the results of scientific investigations largely in non-technical form. The committee hopes to come into possession of larger financial

resources, and has already laid elaborate plans for the prosecution of a detailed scientific study of human characteristics and traits, both normal and pathological. The committee has co-operated in the establishment of the Eugenics' Record Office, at Cold Spring Harbor, under the directorship of Mr. H. H. Laughlin. This office is collecting, filing and analyzing data from all over the country respecting the heritable family traits or characteristics of various sorts. Already very valuable publications have been issued by this office.

The American Association for Study and Prevention of Infant Mortality also has organized a Eugenics' Section, and contemplates the collection of data regarding the hereditary transmission of pathological conditions, with a view to lessening the infant mortality rate.

In Germany an International Society for Improving the Health of the Race (*Internationale Gesellschaft für Rassen-Hygiene*) has been formed, with Dr. Alfred Ploetz, of Munich, as President. There is a similar society in Sweden. The German society aims to pursue its work in a spirit of chivalry, operating on higher levels, however, than the chivalry of the Middle Ages. This chivalrous spirit will, Dr. Ploetz believes, impart self-respect and dignity, and guard against the squandering of the chief national strength. The society seeks to promote the study of scientific biology—social and racial—and of social and racial hygiene (a) by collecting and recording such facts, pathological and normal, bodily and mental, as illustrate the working of the laws of heredity and variation in the case of man; (b) by spreading the knowledge of these facts, and of the lessons to be derived from them, amongst its members and the population at large. It seeks to stimulate its members to carry out in practice the following principles, viz.: (a) to improve their own spiritual, intellectual and bodily efficiency; (b) to agree that before entering into marriage they will submit to a medical examination as to their fitness for the marriage state, and if pronounced unfit, will abstain from marriage, or, at all events from parenthood; (c) to promote by every means in their power the individual and racial efficiency of their offspring.¹

In France also there is activity along these lines. Here, however, there is perhaps more of practical work and less of oratory and essay. The various agencies which seek to counteract present economic conditions, which tend to penalize motherhood and to handicap the man of family are cast largely along eugenic lines. Numerous bonuses to large families and special concessions to the married here tend to pre-

¹ From report in *Eugenics Review*.

serve the middle class, the backbone of any nation, the source from which, under present conditions, the men of ability and genius must be recruited. For example, in the City of Paris every workman receives at marriage a gift of 100 francs. Married workmen receive a gift of 100 francs each at the birth of a child. The mother, if she is in work or in service, has a right to six weeks' holiday on full pay. Every workman who has more than three children on his hands under the age of sixteen receives the sum of 100 francs per annum for each child after the third. In the colonies also of England, Germany and France research, agitation and legislation along eugenic lines is advancing.

What does all this activity mean? Is the matter really serious? Are the English, German, French and American nations actually in peril? Are our prophets seeing aright when they point our attention to the fate of Assyria, Babylonia, Egypt, Greece and Rome? Are symptoms appearing among us similar to those which accompanied the demise of these great nations? Have our statesmen-scientists suddenly become hysterical, lost their power of clear vision and intelligent foresight? Are they tilting with windmills, or are they actually fighting national dragons? What, then, seems to be the trouble? The trouble is implied in a statement of Whetnam's "Although the suppression of the best blood of a country is a new disease in modern Europe, it is an old story in the history of nations, and has been the prelude to the ruin of states and the decline and fall of empires."

The fall of Rome is not now attributed to degeneracy following luxury and over-culture spoken of by Gibbon, nor to the malarial parasite as urged by Dr. Ross, nor to a principle of natural racial senility spoken of by Professor Ray Lancaster; but most probably to the fact, as President David Starr Jordan points out, that the human harvest was bad; that Rome sacrificed its best manhood in war, and left the business of breeding new generations to weaklings, senile, cowards and scullions.² The same sad lesson is just beginning to be read by England in the Indian and African wars. The flower of her young manhood, scholars from Oxford and Cambridge, lie in the sands of India and South Africa, "replaced by marble tablets" throughout the counties of England.

A similar lesson we read in the Civil War. Five hundred thousands of our best young men, North and South, are lost forever. That particular loss can never be replaced. America, perhaps, will never be able to restore what the war has cost in terms of its highest national asset—splendid young manhood.

² "The Human Harvest," 1907.

In the Wiertz Gallery in Brussels is a picture of Napoleon in Hell. There stands Napoleon looking out into space. Here in the foreground are innumerable faces. Thousands upon thousands are simply hinted at. These are the faces of the young men and women and children who were killed in the wars of Napoleon. Surely this is a Hell; for Napoleon must have seen, clear-headed man that he was, that back of these were the potential millions of the best of Europe never now to be, because he had killed their potential ancestors.

The two hundredth anniversary of the birth of Frederick the Great was celebrated in Berlin by an exhibition of paintings at the Royal Academy of Arts. These showed the versatile monarch in the many phases of his remarkable career, and represented the work of his contemporaries, as well as of later artists. A reproduction of one of the paintings, "Frederick the Great After the Seven Years' War," was published in the *International Studio* for May. I am sure it was one moved by eugenic ideals who interpreted the picture thus: "The pathetic, intelligent face and the bowed figure seem to suggest that the victor is asking himself the question, 'Was it worth while?'"

Do you realize, my friends, that only about 12 per cent of the present generation (or about 25 per cent of the marriages) produce 50 per cent of the next? Who constitute this 12 per cent? Is it our racial best? If so, then all is well. If otherwise, then we are in peril. And we are in peril because like produces like; as the parents so the children; because figs will not grow on thistles nor grapes on thorns; because out of an unclean thing no clean thing can come.

The real trouble is that the most prolific are, on the whole, the less fit for the sacred duties of rearing the next generation. Too much poor stock is being bred; there is too little restraint upon idiots, feeble-minded, epileptic, tuberculous, syphilitic, diseased; and too meagre productivity among the best stocks. This is not merely an academic question; it is practical and most vitally important. National salvation seems to lie along the path of rigidly applied negative and positive eugenics, i. e., prohibition of parenthood, either by public opinion, moral suasion or legislation, to the unfit; and encouragement again by either or all of these methods for more abundant parenthood among the racially fit.

The scientific basis upon which this remedy for national death rests is our knowledge of heredity. I have not time here to discuss the importance of the factor of environment. Suffice it to say that this factor is essential. The environ-

ment must be made as nearly ideal as possible by the elimination of all noxious bacterial and other deleterious conditions for the proper development of the best that heredity can give. But heredity comes first; environment, however necessary, can only follow. As Barrington and Pearson put it, "The first thing is good stock, and the second thing is good stock, and the third thing is good stock, and when you have paid attention to these three things, fit environment will keep your material in good condition. No environment or educational grindstone is of service unless the tool to be ground is of genuine steel—of tough race and tempered stock."

Darwin long ago wrote "Hardly anyone is so ignorant as to allow his worst animals to breed." When the matter is one of breeding rare fowl or fine cows, or good horses or dogs, we breed only from the best. Why do we so persistently and cowardly-wise shut our eyes to very obvious facts when they concern man? And today when we know so much—though we desire so much more, which will be ours in time—about the hereditary transmission of human characters, there is no excuse for inaction except selfish indifference or cowardice and the lack of patriotism.

There is an almost appalling array of scientific data regarding heredity in higher animals and man. I have time to speak of only a few investigations, whose results seem to me most significant for our present purpose.

Professor Davenport has worked out the inheritance of blue and brown eyes in man. Brown eyes are due to the presence in the iris of a brown pigment; blue eyes to the absence of this pigment. Brown eyes may be either brown duplex or brown simplex, i. e., they may have resulted from a double brown-eyed parentage, or from one in which only one parent was brown-eyed. When brown-eyed duplex individuals mate only brown-eyed offspring result. When brown-eyed simplex mates with brown-eyed simplex, one in every four will be blue-eyed. When brown-eyed simplex mates with blue-eyed, one-half of the offspring will be blue-eyed. Inheritance of eye color follows the Mendelian laws of dominance and segregation, by which one of a pair of alternative characters dominates in the first generation, and from crosses of such hybrids a generation will result in the proportion of three of the dominant to one of the recessive, one of which dominant and all recessives always breed true. The same law holds for many other physical characters. I believe that I have demonstrated this type of inheritance for crosses between whites and negroes as respects skin-

pigment; also for the character of left-handedness; likewise for pulmonary tuberculosis.

There prevails a justifiable presumption that the same principle governs also the transmission of psychical and pathological characters. The point is that what is in the germ cell will come out at some time, and in a certain definite proportion according to the type of the mating. If we want sound men, strong men, intelligent men, honest men, temperate men, chaste men, wise men, they must be bred from their type.

That this is not all assumption is shown by the investigations of Galton himself, in which he studied the parentage of 207 fellows of the Royal Society. He assumed that 1 per cent of the individuals of the class represented might be expected to be "noteworthy." In the general population it is about 1 in 4,000, or 1/40 per cent. Galton found that on this basis fellows of the Royal Society had noteworthy fathers, with 24 times the frequency to be expected in the absence of heredity; noteworthy brothers with 31 times the expected frequency, and noteworthy grandfathers with 12 times the expected frequency. Galton, moreover, showed statistically, by a study of the families of the judges of England between 1660 and 1865, that the chance of the son of a judge showing eminent ability was about 500 times as great as that for a man taken at random from the population.

Dr. Schuster, in a similar investigation, examined the class lists of Oxford covering a period of 92 years. He found that the first honor men had 36 per cent first or second honor fathers; second honor men had 32 per cent first or second honor fathers; ordinary degree men had 14 per cent first or second honor fathers. These percentages are far in excess of those to be expected—estimated at about 0.5 per cent—on the assumption that ability is not inherited.

Schuster also determined the coefficient of heredity between fathers and sons as regards intellectual ability, using class marks at Harrow and Oxford. The correlation coefficients as determined were 0.30 for the parental relation, and 0.40 for the fraternal. In many forms of insanity the correlation coefficient has been found as high as 0.57 for the parental relation, and 0.50 for the fraternal.

It seems clear that psychical traits are inherited in like manner and with the same intensity as physical traits. The history of the Edwards family, as determined by Winship, gives the very strongest evidence in favor of the heredity of mental ability. Of the 1,900 descendants of Jonathan Edwards, of Connecticut, 1,394 have been identified—295 were

college graduates, 13 were college presidents, 65 were college professors, 60 were physicians, 100 were clergymen of renown, 75 were officers in army and navy, 60 were prominent authors, 100 were lawyers, 30 were judges, 80 held public offices, 3 were United States Senators. Besides, 15 railroads, many banks, insurance companies and large industrial enterprises have been indebted to their management. In fact, as Judge Foster remarks, "Almost every department of social progress and of public weal has felt the impulse of this healthy and long-lived family. It is not known that any one of them were ever convicted of crime." Think what it would mean for this country if its individual citizens were preponderatingly of such superb stock.

On the other hand, the Juke family illustrates most favorably the inheritance of various types of mental and moral delinquency. Dugdale has carefully traced the Juke family from the five daughters of a lazy and irresponsible fisherman born in 1720. In five generations the family increased to about 1,200. The histories of about 1,000 are known. Three hundred and ten were professional paupers in almshouses a total of 2,300 years—and at whose expense? Four hundred and forty were syphilitics; more than half of the women were prostitutes; 130 were convicted criminals; 60 were habitual thieves; 7 were murderers. This family has cost the State of New York over a million and a quarter dollars—and the end is not yet.

A family recently described by Poellman has a very similar history. This family was established by two daughters of a woman drunkard, who in six generations produced 834 descendants. The histories of 709 are known. One hundred and seven were of illegitimate birth, 64 inmates of almshouses, 162 professional beggars, 164 prostitutes and 17 procurers. Seventy-six had several sentences in prison aggregating 116 years; 7 were murderers. This family has also cost more than a million dollars, and is still very prolific.

Perhaps the most complete family history of this kind is that of the Swiss family "Zero," recently carefully worked out by Jörger. In 1905, 190 members of this family were known to be living, all characterized by vagabondage, thievery, drunkenness, mental and physical defect and immorality.

Where rests the blame for such atrocities as the Poellman, Juke and Zero families? No one will blame it upon the persons themselves. Kellicott is right when he says that "it must be placed squarely upon the shoulders and consciences of the intelligent members of society who have permitted these

predetermined degenerates to be brought into the world, and who are today taking no broadly sympathetic view of their treatment by exercising preventive measures."³

Some years ago England became alarmed at its decreasing wheat supply, and the prospect of consequent starvation. At the meeting of the National Association of British and Irish Millers in 1900 this matter was discussed, with the result that Professor R. H. Biffen, a biologist, was employed to make a scientific study of the causes underlying the poor wheat crop, and determine means for improving the same. The specific problem was to produce from a loose-eared, well-bearded native wheat, with low gluten content, and susceptibility to rust, one suited to British climate, but with full beardless ear, strong straw, high gluten content, high yield per acre and rust-resistant. We are interested here only in the attainment of the last requirement, though it ought to be stated that Biffen succeeded in producing the wheat according to specifications in 1905.

Biffen crossed the native rust-susceptible wheat with a foreign rust-resistant wheat. All of the first generation were rust-susceptible. But when seed of this generation was sown there resulted rust-susceptibles and rust-resistants approximately in the Mendelian proportion of three to one. The rust-resistant recessives thereafter bred true to type. This experiment, and others that might be mentioned, demonstrate that susceptibility and resistance (or immunity) to disease are of the nature of "unit character" or "allelomorphs," and may be fixed or eliminated at will in plants and animals by appropriate breeding experiments.

Suppose we substitute here for rust-susceptibility and rust-immunity, predisposition and resistance to the tubercle bacillus in man. Tuberculous stock crossed with tuberculous stock can then generally only yield like stock; similarly for many other pathological conditions, such as cancer, heart disease, nephritis, arterio-sclerosis, rheumatism, idiocy, *et cetera*.⁴ And a number of studies already show that this is not pure assumption nor surmise.

To cite only the investigation of Karl Pearson with respect to tuberculosis: This work yields most cogent proof that a large quota of tuberculosis is due to a hereditary diathesis or predisposition thereto. The salient facts in the proof are that tubercle germs are fairly ubiquitous, and that about 85 per cent of all individuals have tubercular lesions before the age of eighteen; consequently if it were simply a matter of infection, most of us would be tuberculous; furthermore,

³ "The Social Direction of Human Evolution," 1911.

⁴ More probably the reverse order expresses the more general relationship with respect to these morbid conditions; i. e., the defect is *recessive* to the *dominant* normal condition. Similarly, however, marriages where both parties suffer the same defect should be emphatically discouraged.

while the degree of resemblance (the correlation coefficient) between husband and wife, where there is much opportunity for possible direct infection, is only somewhere between 0.17 and 0.25 (and this Pearson regards as due largely to assortive mating), that between parents and children is between 0.40 and 0.50, and between brother and brother, who at the time of the usual onset of the disease have generally already left the home, is as high as from 0.40 to 0.60. A large amount of tuberculosis is thus undoubtedly due to a hereditary lack of resisting power or immunity, and might be more largely eliminated from future generations by wise matings and proper marriage restrictions.

The solution of our great social problems from this standpoint, you see, is primarily in the hands of the scientist, notably the physician and trained biologist. But unless they have the hearty co-operation of the publicist, the statesman, the economist, the social worker, and such institutions as the church and eleemosynary institutions and charity organizations, they can do very little. First, the general public must be educated. Here every one can help. Then there must be further investigations. This demands the best scientific talent available in the country. It demands also a complete and centralized system of collecting, recording and preserving statistics. This means government endowment, which in turn waits upon the intelligent and sympathetic appreciation of the importance of such work on the part of the legislator and statesman. Then there is demanded legislative action with respect to restrictive marriage laws forbidding marriage to physically or mentally tainted stock. There is demanded also legislation providing for the sterilization of the criminal and the very defective types, upon whom no appeal on any usual moral or civic plane has effect. Then there ought to be a federal law similar to the several state laws under which sterilization may now be practiced in the States of Indiana since 1907, Washington, California and Connecticut since 1909, and recently also in Nevada (1911), New Jersey (1911), Iowa (1911) and New York (1912). There ought to be legislation which could counteract the present conditions which tend to penalize parentage and family life, the admitted vital unit of modern society. Such legislation awaits the thought and guidance of the American young manhood, of which our young men are a part.

Less than a century ago England administered capital punishment for 223 offenses. This was drastic, but effective, in keeping the supply of criminals at a minimum. A more

humane civilization has universally reduced the list of capital crimes to one or several, but has still largely failed to meet the problems of feeble-mindedness and criminality in a manner adequate to hold these maladjustments at a minimum.

Let me call your attention to another investigation of Professor Pearson's. Stated in greatest brevity, Pearson has disclosed a decided lowering of the English birth rate at a number of definite periods corresponding closely to certain factory acts reducing the economic value of children and applying to bleaching and dyeing works, to copper, steel and iron industries; namely, the Workshop Regulation Act of 1867; the Education Act of 1876; the Factories and Workshops' Act of 1878; the Mines Act of 1887, and the 1891 Act as to labor by women and children.

Pearson believes that the present precarious condition of England with respect to the birth rate is "a direct effect of the destruction by legislation of the economic value of the child." He advocates "reversal of all legislation which penalizes the parentage of the fit, and the restriction of all charity which favors the parentage of the unfit." "We must directly or indirectly," says he, "produce differential wages for the fit parent; in other words, there must be endowment of fit parentage at the expense of the unfit parent and of childless men and women."

To quote further, "When we regard the present six or seven million pounds a year—soon to be ten or more millions—given to a mere environmental reform, which is applied long after the reproductive age, and cannot possibly produce any permanent racial change, how deeply one must regret the want of knowledge and of statesmanship, which overlooked the naturally disastrous policy of the factory acts, and did not seek its opportunity to endow parentage, rather than senility, with those annual millions! Even as a party cry I believe the endowment of parentage would have been effective; as a step to meet grave racial dangers it would have possessed real insight,"⁵ (p. 31.) Here is occasion for serious thought and noble action on the part of the young men and women whose lives will be cast more especially in spheres of legislative influence.

The question, you see, is largely economic, and it has its various social, political and religious phases which I cannot even touch upon. Charity organizations must take more intelligent note of the teachings of heredity. Just to cite one instance: There was formed four years ago a National Association for Study and Prevention of Infant Mortality.

⁵ "The Problem of Practical Eugenics," 1909.

The ideal of the society is to minimize the infant mortality rate. But very naturally infant mortality is a process of natural selection. Unless the conditions are very adverse so as to kill all the babies, only the weakest will die. But the weaker physically may have splendid endowment mentally and morally which cannot well be spared in this commercial day. But aside from this point, no method of discriminate infant conservation can be thought of. Anything less than an effort at universal salvage would be a disgrace to our civilization. But we must recognize the anti-eugenic effect of this attitude. Consequently we must compensate for this unfit material. Compensation lies along the line of prohibition of parenthood to the racially unfit, and encouragement to greater productivity among the most fit.

I hope the main issue is clear. Or at any rate, I hope I have aroused your interest sufficiently to move you to seek and think for yourselves. Upon your thinking and action depends much of the future. And it concerns you, whether you be man or woman, farmer or mechanic, or teacher, or investigator, or lawyer, or what-not. You carry a sacred personal responsibility and a still more sacred national responsibility. Above all, give your kindly sympathy and encouragement to the patient investigator who gives his life to the study, of necessity often in the fashion of a recluse, to these questions of serious national import. Do not join that too large body who scoffs at or, at best, only tolerates the man who "plays" with peas and grains of wheat, or bugs or mice or guinea pigs. Upon the result of investigations into these homely, almost undignified, things may depend the fate of nations.

When this nation shall have established its life upon a eugenic basis, as I believe it must if it shall survive, then of the national heroes that it stops in its toil to honor will be the names of such men as Galton and Pasteur and Mendel. With honor still, for they did their duty as they saw it, but with pangs of pity and regret for irreparable loss, will be regarded the leader of war and of a too-shortsighted charity; but the real sons of Hercules will be those who tenderly, yet sternly, rid our national life of the sources of its corruption and destruction.

Professor Schiller's (Oxford) remarks respecting England's present attitude toward its racial unfitness seem pertinent universally: "There can be little doubt that this policy alone holds out a prospect of ultimate success; but when one reckons up the enormous weight of prejudices challenged by

eugenics, the force of habit in all, the timidity and sterility of our spiritual, and the blind opportunism of our political leaders, the antiquated and unscientific education of the bulk of our cultivated classes, and the ignorance and disregard of real knowledge in which it naturally issues, it is impossible to repress a dread that any considerable measure of success is so remote that political contingencies may easily put an end to the British Empire long before the British people as a whole awakens to the fact that the national degeneration which it is at present complacently fostering is neither a process that can safely be indulged in nor yet a fatality no human foresight can avert. True, the outlook is almost as gloomy throughout the European world, but no man of science can hesitate to predict that, if so, the whole of that world must pay the penalty, and that the nation which first subjects itself to a rational eugenical discipline is bound to inherit the earth" (Eugenics Review).

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† ADDRESS

THE HEALTH AGE *

By JANET LANE-CLAYPON, M. D., London, England

Ladies and Gentlemen:

I look upon this whole health movement which we are met here to consider as one of the most important things which is taking place in our communities at the present time. It is a great pleasure to have the opportunity of telling you a little of what we are doing on the other side of the Atlantic, and I would like to explain why I have taken this title for my talk to you.

We are living in an age which will, I believe, go down to posterity as the beginning of the Health Age. How long it may last, how long it may be so called, will be determined by posterity. If we look around on the history of the world we find that each individual or nation has prospered in the world in accordance with the capacity it possessed for seizing hold of that particular aptitude which was required to make it excel over its neighbors, living at that time. At one time it was one aptitude; at another time it was another. But always that nation or race or individual which was able to seize hold of, and appreciate what was necessary to attain a position of superiority over other nations was that individual or nation which succeeded at the expense of others.

There is not much land left on the earth which doesn't belong to somebody or other. We have to go to the South Pole to find countries that have not been fully appropriated. Perhaps we on our side of the Atlantic feel more than you do the stress of this intense competition for land. You have plenty of land still unoccupied. We have hardly an acre, and the result is that the stress of life is becoming more intense year by year. I remember how this has grown even in my recollection. We see the same difficulty coming up every year of maintaining our independence, our superiority. Every year we have the question of our neighbor's superiority, because it affects our national superiority, our national life. We watch with increasing interest the growing armies of Germany and France—more especially of Germany. We have discussions on the growth of the German navy, and we get anxious at times, and somewhat heated at other times.

* From the stenographer's notes.

† General Session, Thursday night, October 3, 1912.

Why? Because we are afraid that we are not keeping our own position in the race of the nations, because we are afraid that we shall be supplanted, and this superiority must be kept up by a control over the forces of nature, and over those physical forces with which we are at present conversant. We are always finding out more power over certain parts of nature, and we utilize it to defend ourselves. If you will think for a moment of the contrast between the conditions now and some hundreds of years ago it may perhaps be the first step toward realizing what I mean by talking about this age as a Health Age.

In days gone by if you had an army of only a few thousand people, comparatively more of them were racked by disease than were killed in battle. We look around now and we see thousands of soldiers housed at close quarters in barracks, and enormous navies, and their health is comparatively good. That has been accomplished by means of the knowledge we have gained of the forces of nature. By applying this knowledge we have produced health. We could not defend ourselves, we could not support our armies and navies if we had not gained that knowledge of the laws of health which we call hygiene.

This keeping of vast armies has led us to discover many other things as well. The Germans are a most careful people who leave nothing to chance. They began to investigate how far they were going to be able to maintain a large army. They found that they had so many hundreds of thousands of men they could put into the field, and began to wonder how long they could keep this up. They began to investigate the growth of the population. Through their investigations they discovered that the birth rate was falling very rapidly, and they said: This means that our army will not go on increasing in the proportion it ought to do. They saw, as we all see, that to maintain peace in the present state of the world we must have an army armed to the teeth with all the modern appliances, and a navy to patrol our posts, and that we must be able to maintain our army and navy both in health and numbers.

The Germans found that their infant mortality was piteously high, higher than some other civilized nations of the earth, and they began to inquire how this was, began to try to apply the laws of health to the population other than the army and navy. That was the beginning of the present campaign which is now being carried on in many countries. The war cry was raised, "We must have men for our armies, men to defend ourselves, and to get those men we must have

plenty of children to grow up." So the whole movement has developed, a little here and a little there, until now no nation which thinks itself civilized at all can do without some degree of energy in this great movement which is sweeping over the face of the globe. Why is this movement becoming so intense? Surely it is because we have reached a state of development in which we cannot live without a greater appreciation of the laws of health than we have at the present time. We can no longer live isolated. In days gone by they probably had a higher infant and child mortality than we have, but they didn't have to live in large over-populated cities and towns as we must. They lived in the country places. As the stress has come we have been obliged more and more to rely upon machinery and the more complicated things of existence, and we must congregate in the towns. That means that we have to give more careful consideration to the health of our population. If we are going to live, to prosper, if we are going to be able to utilize those forces of nature which we are learning about, in the defence of ourselves, we must apply the laws of health. If we don't it is quite certain that that nation which refuses to apply these laws of health will simply disappear. That is what we are beginning to realize. We must learn how to keep ourselves, and especially the oncoming generations, in a satisfactory condition of health.

After all, what is the value of our armies and navies? It is to maintain our commerce, to maintain the life of the population. In a working population an individual who works is dependent upon his health. It is the most valuable asset we have. If you have not health you can't work, and if a nation can't work it cannot succeed. If you consider human life you will find it always goes around and comes back again to the same point—the son to the parent, and the parent to the son—and you cannot get away from this cycle. If you are going to produce a healthy nation, it will not suffice to consider one part of the cycle. You have to consider the whole of it. You have to begin in one part of the cycle, and you have begun with infant mortality. It was very high, indeed too high, in many of our countries in Europe. Fortunately, in England we have a pretty good climate, and our mortality is not so high as it is in some of the other countries. What is the gauge of the mortality? Whether it is too high or too low? Is there any mortality we can prevent? If so, it is too high. If we are going to produce a nation competent to take its place in the history of the world we must have not only healthy babies, but healthy children, healthy young men and young

women, and healthy parents. So long as we have one gap in our defences against the forces which militate against health we shall not succeed in taking our place in the world. A weak point in the fortification may be our undoing. I don't think it would be fair to say that we are either further ahead in this matter than you are over here, or that we are further behind. I have tried to find out what you are doing in the way of improving the health of the nation. It seems to me that in one or two points you are further ahead, and in some points we are ahead. It is so difficult to apply to one nation the reasons or theories which may apply to another. The conditions of existence are different, the climate is different, the conditions of work different; it does not seem possible to dwell upon details in argument on this question. I would rather point out one or two things which we do, which I think you do not at present do over here, and present them for your consideration. One thing we have been striving for more lately than any other line, apart from general sanitation, is the care of infants. In 1907 we received in England a great impetus in our care of infants, an impetus which at that time I don't think was quite realized. It was the introduction of the Notification-of-Births Act. The notification of births is not the same with us as the registration of births is with you. We have had that for a long time. Registration of births means that all births must be registered within three months. But it was found that a great many babies died within three months, and were never registered at all. About 1906 some medical authorities were so convinced of the necessity for statistics about the birth of babies that they introduced a scheme whereby every person who notified the birth of a baby within two days after the birth received a small sum of money. It was only sixpence they got, but something like 90 per cent of all births were notified within the required time. It was so successful that it resulted in the Notification-of-Births Act being passed in 1907. The Notification-of-Births Act said that all births must be reported within thirty-six hours of birth. Notification might be by medical practitioner, the midwife or the parent, but somebody must arrange to notify. The Act was made voluntary and not compulsory. It could be adopted by any town or left alone. When such an act is made voluntary, naturally any town which wants to take up new ideas, is anxious to try the effect of the new measure. So many towns signified their desire to adopt the Notification-of-Births Act in 1907. The Central Board of Health (Local Government Board) specified that any town adopting this Act must show

to the Local Government Board, to the satisfaction of the Board, that they had adopted, and were going to adopt, measures to insure that every child whose birth was notified should be visited by a competent visitor within a short period after notification; that is to say, steps were to be taken to see that the baby was properly cared for. It was quite unforeseen how successful this Act was going to be. It has formed the basis of an immense amount of work, and is forming the basis for more, and we do not yet entirely appreciate the far-reaching effect of this Act. It has led to the establishment of a complete system of looking after the welfare of infants under one year. We have lady doctors appointed in many cases as assistant health officers, who are supervisors of the children whose birth is notified. They have under them the health visitors, who must visit these babies very shortly after notification, and must inquire about the feeding and health of the mother and encourage breast feeding. The babies are brought up to consultations held by the Lady Medical Officer. Practically the consultations correspond with the work of your milk dispensaries, with the exception that we don't have milk. Babies are brought up for consultation, well or ill, to see that they are kept in health. That is the true sense of preventive medicine, and I can say that the results have far exceeded our expectations. The milk problem has been attacked in some of the cities, with the result that the mortality fell below the former record, and the general condition of the children has improved. The same results have been attained in the States over here, where similar measures have been adopted. But you have not yet adopted notification of births, which makes it so easy to trace the children that you can at once put your finger upon a child after notification. In addition to that, we have schools for mothers. We are very keen on schools for mothers. It is not much use looking after the children unless you can persuade the mother to look after them, too. The first one was started about five years ago, and had cutting-out classes, cooking classes and sewing classes. We have some two or three hundred now and expect to have another hundred more in different places all over the Kingdom. Every time we have a meeting of our Association we have reports of many new schools for mothers having been founded in different parts of the Kingdom. I know of no country as yet which has solved the problem of the child from two to five years in a satisfactory manner. I hope soon we may do something in that direction. Even in thorough Germany, where they leave nothing to chance, I was rather surprised to find that they had done

practically nothing in that direction. We have started the teaching of hygiene in the schools. I think we shall soon find that spreading all over the world. We must teach our children the laws of health, not only in the schools, but also in the home.

At a conference last May in London there was much talk about the feeding of the girls and boys in boarding schools. One schoolmaster and schoolmistress after another said, What is the use of giving these children wholesome food and trying to find out what food they ought to have during the term, because when they go home they ask for the most unwholesome thing, and get it. There is something in that even for the day school. If you have the children taught in the schools and the things are not practiced in the home, half the influence is going to be lost. It rests with the fathers and mothers and even the older members of the present generation to see that they, as well as the children, know something of hygiene. You must educate not only the coming generation, but the present generation. We find it a great effort to start a new thing, but it is worth doing, and it is a thing that must be done if we are going to be successful as a nation.

Here you have an opportunity and power for doing things which we have not in the old countries. You have a freedom which we have not. You are not hampered by the traditions of centuries, as we are. When we think of something new, the first thing somebody says is that it has not been done before. We have not yet got that freedom which you have over here. You seem to me to have the basis for organization, for widening your sphere in every direction. The basis of all new movements is the interest taken by the general public, and we are all general public, and it is public opinion which must lead. We have in our Anglo-Saxon countries a government which comes from the people up to the government, and when the government realizes that the people will have it, they get it. You have only to make up your mind you want it, and you will get it. There is no reason why you shouldn't have a healthy generation, no reason why we shouldn't; every nation that takes the trouble to find out will ask for the things that are essential to health, and will be able to take its part in the race of the nations.

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*** ADDRESS**

BETTER PARENTS OF BETTER CHILDREN

By HELEN C. PUTNAM, M. D., Providence

***ABSTRACT**

- I. Those unfit for parenthood should be segregated from society during at least the years of possible parenthood.
- II. Normal people must be definitely educated for home-making. Parenthood is the greatest vocation, not only in numbers of those following it, but in responsibilities and high rewards. There should be required not only a health certificate for marriage, but one of ability to care for family.
- III. Description of an existing university course for young women, giving fair idea of what higher educational institutions are undertaking:
 - (a) Central thought of four years' course: Improving the individual so that future generations may attain a higher level than those preceding.
 - (b) Study of social relations of home after two and a half years in chemistry, physics, biology, bacteriology, physiology and household management. Elementary embryology, heredity, effects on germ plasm of alcoholism, syphilis, drug habits; drunkards, insane, feeble-minded, habitually criminal, sexually depraved men and women usually have children with defective nervous systems, and usually breed their kind.

There is a far-reaching significance in their enumeration of syphilis and gonococcus infection among ordinary contagions, and in their study of these statistics, as well as the others, in government and scientific reports and their relation to the home; for they are much more prevalent than tuberculosis, and they injure wives and children to an extent not possible to estimate. They are the cause of many deaths before birth, of the death, degeneracy and blindness of many infants in the first year of life; of many childless families and one-child families; of the invalidism, surgical mutilation and death of many wives; of much insanity, rheumatism, heart disease and other physical and mental incapacity; of much divorce, un-

* Abstract of address presented at General Session, Friday night, October 4, 1912.

happiness, crime; of expenditure of large public and private funds on misfortunes that can and should be prevented. They have through slow processes exterminated ancient nations and modern communities.

The students see logically that control of these contagions must be the same as control of smallpox, scarlet fever and any other that we have almost eliminated—every case must be reported to the board of health. That this so evident first step is not taken is due to the fact that boards of health, who are charged with administration of health laws, do not enforce the law requiring this done; that in the majority of states these laws have still to be enacted; that the great majority of physicians will not report these cases (as unscientific as untrustworthy conduct); and that city governments, through their courts and police, permit the “double standard of morals” in the community, so that the home is not protected from dangerous men.

One of the greatest, if not the greatest obstacle to securing the reporting of these common contagions, or the protection of the public, is the retention of names that stigmatize the patient—such as “venereal” or “shameful” diseases. Both syphilis and gonococcus infection, absolutely inoffensive names, are very frequently, perhaps in the majority of cases contracted by the patient without sexual immoralities; for example, from common cup or towel, from kissing, handshaking, or by marriage or by birth; all these being agencies for communicating any contagion. Then, too, both affect the whole system, the brain and nervous system especially, bones, eyes, heart, and possibly no tissue escapes these germs. They resemble, too, certain other infections, and have been sometimes mistaken for tuberculosis, malaria, nervous debility, or called rheumatism, etc. Until syphilis and gonococcus infection have these, their proper names—wholly free from unscientific, sentimental and often unjust reflection on morals—as are the names diphtheria and tuberculosis, although their victims may be evil—until we use these scientific names we cannot protect parenthood by controlling these dangers to the home. Physicians and other leaders have great responsibility in this matter of nomenclature.

Education for parenthood necessarily brings with it the insistence that government shall protect parenthood from these contagions and their inseparable evils; and since government does not do so, possibly never can do so, as the great majority of men claim, women in various countries in increasing numbers, and with the co-operation of many of the best men (but invariably fought by saloon, gambling and other

vicious elements), are securing the political right to protect their own and children's rights according to their duty to the laws of God. There is no doubt in the minds of keen students of social relations that political dominance of sex is wholly an evil and to both sexes; that the only right dominance is wisdom of which education and experience are giving women full share with men. Civil law made by men not based on biologic law which women are learning ends in disaster.

The wise intelligence of mothers, of professional women in the ministry, in law, in medicine, in sociology and in education; laboring women with their sense of wronging their children when they go out from the home to earn their food and roof; and the other mothers who see their dearest, without legal protection or redress, contaminated body and soul out of the underworld, whose pollution reaches all classes; these are concentrating on the demand, and are winning it. It is an indispensable step toward the establishment of right relations of the sexes.

After this study of heredity and social relations of the home comes study of physical and mental development of child and adolescent; the influence of city life and country life on development, with school statistics of the rate of growth of boys and girls; the kind of education adapted to different kinds of children; infant mortality—the effect on it of women's work outside the home, and of different kinds of occupations of mothers before the child is born; governmental and social efforts to reduce infant mortality; the pension system for mothers, paying a small sum enabling them to stay at home and nurse their babies thus saving citizens, as governments have hitherto pensioned soldiers; the effects of institutional care of babies and children on death rate and development; the cause of reduced birth rates, and the duty of the educated in the preservation of the race; children in industry, and its legislation; the housing problem; child psychology; children's vices; education of the will; a study of nervous states and their hygiene; home recreations.

In this and in other similar courses is co-operation with one or more of such institutions as neighboring nurseries, kindergartens, children's hospitals; and there are always practice classes of children in connection with every teachers' normal school. Regret is expressed by several English educators that men's education does not supply the essential information along these lines for intelligent fatherhood. It is an equally important need in American education. Many universities and colleges having courses corresponding to the one outlined have also extension weeks for farmers' wives

and for men, with thousands of attendants, in which as much as possible of instruction in care of children is introduced. Teachers graduated from such regular four years' courses organize hundreds of mothers' clubs or parents' clubs, where study of care and education of children is steadily developing.

IV. Continuation schools and classes for young people from 16 to 30 years of age, the strategic years for instruction in the interests of home-making; approximately 20,000,000 of these ages who dropped out of grammar grades without graduation, all liable to become home-makers.

V. Elementary schools present greatest problem.

How can we best help these potential parents of whom one in twenty goes on to high school? We know that various definite brain areas control each some special act or function. Child study shows that certain areas at certain ages develop best, and that age is, therefore, the strategic time to present that line of instruction, which if given at some unphysiologic period, not only does not develop its best, but may crowd out ideas that should occupy attention then.

Is it wise for formal education in these elementary years to cultivate the arts of parenthood, the chief being to support and care for the family and care for infants? Or is it wise, instead, for formal education to use these years for establishing ideals of life and parenthood on sound bases, with general manual training (including elementary cooking and sewing) for general executive and co-ordinating ability?

One can always make a child eager over what one wishes by tactful methods—they are utterly plastic in older hands to the limit of natural law which finally avenges its own violation. One can make them enthusiastic over care of babies very easily; but is it best for the next generation that little girls, instead of freedom and open air and play, be taught in the schools to lift, carry, tend, feed, manage babies? Is it best for the baby to be cared for by an intelligent child, or by an intelligent mother? Is it wise for society to tolerate, or to encourage through its educational system, the economic or any other conditions that separate mothers and babies by teaching little girls to do mothers' work? We hear much of child labor in factories; but there is also a problem of it in the home. It is already recognized as a problem in country homes. Do any of the sexual mistakes of early adolescence come from too early cultivation of parental instincts before right education has laid foundations of ideals?

A recent masterly study of vocational education in Europe includes among its final recommendations for this country one that vocational education should not be given under fifteen years; that these earlier years are needed for founding general intelligence and ideals and tastes, and securing elementary co-ordination of hand and brain centers. If this is right, and it claims to sum up all educational experience, then the vocation of home-making in its most important art—care of babies—does not belong in elementary schools. We are the only animal, someone says, that works its young for the care of others, and with us it is already proving a blight.

I submit that girls are entitled to their girlhood, if they are to become good mothers, as are boys to their boyhood; as are babies to their mothers and mothers to their babies. And I submit that it is worth while, *very* worth while, to do as is done in some places—provide mothers with pensions or insurance, enabling them to bring up their babies in homes suitable for making citizens, with visiting nurses and teaching clinics and continuation schools to show them how.

VI. Outlines of courses in biologic science teaching the renewal of life along with health topics and nature studies:

- (a) In primary and kindergarten classes
- (b) In grammar grades
- (c) In schools in "tenderloin" neighborhoods
- (d) In high schools

These teachings, so rapidly outlined, agree in certain very important points, and demonstrate certain very important principles: (1) Not all teachers should undertake this; but only those prepared to teach the elementary science of living things. Such do little with books or talks. Pupils see and handle plants and animals, watching life processes with *minds that are guided to search for law*. (2) Direct instruction concerning sex and the renewal of life is not given even in emergency until there is a well-laid groundwork in the renewal of life in all nature, a scientific setting or background with a scientific vocabulary, that eliminates the vulgar attitude toward facts of sex, inevitable when they stand alone.

We have made the deadening mistake of omitting from education all direction of the duty of passing on the life we inherit. Education has been limited to self-preservation. Our sins of omission cannot be undone. The sorrow and suffering have been and left their blight. We are in some danger, in our haste to get wise, of going to the other extreme, and over-emphasizing what is called "sex hygiene." This can hardly

do more harm than altogether omitting it, but agitation for "instruction in sex hygiene" and "societies of sex hygiene" seems over emphasis and shortsightedness.

Not one of the teachers whose work I have outlined mentioned "sex hygiene." They taught their biologic science, whether "nature study," or botany, or "school gardening," or zoology, or elementary biology—they taught it as it should be taught, and said nothing about it to anyone. To me they said, "It would kill my work to talk about it outside."

Our imminent problem in human betterment arises from the mental attitudes that have increasingly over-emphasized anatomic distinctions of reproductive capacity, oblivious to the point of debasement of their creative purpose—the child—the future of the race. This over-emphasis of sex has so permeated church customs, legal and educational, government and social fashions, that abnormal discriminations with no biologic justification have resulted in one of the great crises of history. We seem on the point of displacing this myopic scheme of modern society, artificially based on imagined sex distinctions and the gratification of the individual man or woman, by making our own the Creator's purpose, so far as we understand it—the evolution of a better humanity.

VII. Education must establish national consciousness, beginning in kindergarten, that Life is a Trust received from many who have gone before, to be guarded and bettered in one's turn, and passed along to many after.

***ADDRESS BY THE PRESIDENT FOR 1913**

**L. EMMETT HOLT, M. D., Professor of Diseases of Children,
Columbia University, New York**

**THE IMPORTANCE OF HOSPITALS FOR INFANTS AND THEIR
PART IN THE PREVENTION OF INFANT MORTALITY**

The fundamental causes of excessive infant mortality depend upon conditions which are sociological and economic. They include housing and the environment of cities, labor conditions affecting wages, the cost of living, illegitimacy and other consequences of vice, want of care and many other factors. For practical purposes all of them may be regarded as the results of poverty, ignorance and neglect. These bring about certain definite results, i. e., an infant population which comes into the world with less than normal resistance to adverse influences. Nutrition and growth are difficult owing to improper food and care. These conditions predispose to disease, which easily develops in these susceptible individuals as a result of neglect, exposure, contagion or accident. We cannot hope to abolish poverty, we cannot altogether remove ignorance and neglect, but we can seek to minimize these evils as they bear unfavorably upon infant life. We are compelled in this problem to attack consequences rather than causes.

In the solution of a great social problem like that of infant mortality several things are necessary. First, it is fundamental that we have a knowledge of the facts, full, definite and accurate; this includes not only the circumstances of death, but the causes. Secondly, we must discover the best means of prevention, and the agencies through which these measures can be most effectively used. Finally, there must come the actual application of the knowledge of preventive and curative measures to achieve the result aimed at by coming into close practical relation with the public we seek to influence. Briefly, then, our activities must be, first, statistical; second, preventive; third, curative.

Now, in a broad campaign like this one, if it is successful, we must have many different kinds of interests enlisted. We need a publicity department which shall bring home to the people of the whole country the importance of this work. Through the newspapers and magazines public interest must be awakened and public spirit aroused. With so many good causes constantly forced upon public attention we will get no

* Introductory Address of the Incoming President, presented at the General Session, Friday night, October 4, 1912.

hearing without constant and persistent effort. The value of popular exhibits in awakening the public has already been demonstrated; these should be continued and greatly extended. We need legislative influence which will enact, and a public opinion which will enforce proper laws regarding the employment in factories and sweat shops of expectant mothers and mothers with young infants. We need the co-operation of municipal authorities in securing clean streets, pure milk, good water and proper tenement construction and inspection. We need the philanthropic agencies which shall make it possible to give relief when needed—proper food for nursing mothers, milk stations to supply pure milk for those unable to pay for it, and for many other emergencies. We need the help of the sociologist in the solution of the problem of poverty in large cities, of which excessive infant deaths are only one of the results. We need the nurses and other social workers, who shall take into the homes of the poor and ignorant a knowledge of established facts regarding infant feeding and hygiene. These people can be enlightened and roused to action only by personal contact.

We know the main facts regarding infant mortality; we know the important causes; we know the chief remedies. What remains is to get our knowledge before the public and stimulate to action. Is there anything else needed in the solution of this problem? Many of you would, I think, be inclined to answer in the negative. With this opinion I would hardly agree. It is my own belief that the medical aspects of the question of excessive infant mortality have come, or are coming, to be too little considered. Especially is this true regarding hospitals for infants. We have in this country been slow to appreciate the need of special hospitals for children. Just as the specialty of pediatrics has been gradually differentiated from obstetrics on the one hand and general medicine on the other, so the evolution of the special hospital has been a slow one. Homes for foundlings most of our large cities have provided for many years. These, though necessary, have been in no sense hospitals; and often lacking in proper medical control, by their excessive mortality, they have served as an example of how little philanthropy without science can accomplish in saving infant life.

In maternity hospitals infants are tolerated as one of the unavoidable incidents of obstetric practice. But the provision for them and the attention bestowed upon them, even in our best institutions, is something which shocks the pediatricist. Certainly these institutions have as yet failed to appreciate the institutional requirements of young infants.

Wards for young children have been a part of the organization of a number of our larger general hospitals for only fifteen or twenty years. But these, again, have missed the mark for two reasons: First, in that they have been given over largely and in many cases exclusively to the treatment of orthopedic and other surgical cases, and in the second place, where medical beds existed the service was a part of the general medical service of the institution, and the attending physicians serving in rotation, as a rule, gave scant attention to the infants, and the net result was that the service often went by default, and very little was accomplished in advancing the knowledge of the diseases of children.

It is often urged that wards for infants in general hospitals are to be preferred to separate hospitals. In spite of the fact that efficiency of the children's service has been greatly improved by the appointment in many hospitals of a special attending physician to these wards, with a continuous service, a practice which should invariably be followed, I have personally no hesitation in pronouncing in favor of the separate hospital.

The construction, the equipment, the organization and the operation of a hospital for young children are quite different from those needed in hospitals for adults. These grow out of two great difficulties which attend the hospital care of these patients, the problem of nutrition and that of ward infections. These necessitate smaller wards, ampler provision for the separation of patients in doubtful cases, and in diseases of feeble communicability than our ordinary contagious diseases. Not only must there be sufficient provision for fresh air and proper ventilation for our acute infectious cases and pneumonia; we must have also wards in which a temperature much higher than the usual room temperature can be maintained for the congenitally feeble, the marantic and the premature infant.

The nutrition of feeble infants is always difficult, even in a state of comparative health; but with acute illness added these difficulties are greatly increased. The feeding especially must be exact; it requires special equipment, and especially trained service. There are many other particulars in which the operations of an institution caring for the very young must be carried on in an entirely different manner than in an adult hospital. It has been my observation and experience that boards of managers and hospital superintendents and head nurses can rarely be made to appreciate them. Forming only one department of a large institution, and that usually a small part, it is rarely the case that anything like adequate atten-

tion from an administrative point of view is given to the wards for infants and young children.

The statement has sometimes been made that hospitals for infants tend to increase infant mortality rather than reduce it, and that sick infants can be better treated in their homes, even though these homes are very poor ones. Granted that the hospital care of infants is surrounded with peculiar difficulties not encountered with older patients; granted also that in the past these difficulties have not been appreciated and overcome, and that the results have sometimes been far from satisfactory, this only proves that hospitals for infants must be built, equipped and managed for this special work. They have their limitations, as do all institutions for the care of children; but they have a most important field to fill.

In the past our hospitals have represented our philanthropy. The modern hospital, while not losing its philanthropic character, is to be classed among the institutions for higher education. Today every great industrial corporation maintains, often at large expense, its research department. On the findings of the mining engineer, the chemist or the electrical engineer hang decisions which involve millions of capital and the employment of thousands of laborers. The hospital is, first of all, the research department of organizations for the reduction of infant mortality. Provision for research should be ample, and this department should be generously supported. Here are opportunities found in no other institution. The close association of the scientific and practical workers under one roof is of great advantage to both. There is urgent need at the present time not only of chemical and pathological studies, but of the study of clinical problems. Nearly the whole fabric of infantile therapeutics must be constructed anew from the standpoint of recent advances in medical science. It is in the hospital also that observations must be made from which the fullest and most exact knowledge regarding the causes of infant deaths is to be determined. The reports made in the vital statistics of our cities are full of errors, many of them of much practical importance. These errors can only be avoided where opportunities exist for the most careful study of diagnosis during life, and where post-mortem examinations can determine causes in obscure conditions.

To illustrate, let us take the question of tuberculosis. The old view was that tuberculosis in infancy was an infrequent condition. Hospital observations have, however, shown tuberculosis to be more common in infancy than at any other time of life; nearly 10 per cent of the infant deaths seen in

such institutions are from this cause. Instead of being among the least susceptible, infants have thus been shown to be the most susceptible members of the community. Infantile tuberculosis has simply been overlooked or wrongly diagnosticated. Many deaths formerly ascribed to bronchitis or acute bronchopneumonia, and attributed to overcrowding and exposure, the hospital has taught us are due to tuberculosis. So also many cases entered in vital statistics as "marasmus," or simple wasting. "Simple meningitis" also is a diagnosis which once figured prominently in mortality records; nearly all of these have been shown to be tubercular. Not only has the hospital and its laboratory shown us the nature of the disease, but it has revealed the source of infection. In nearly all the fatal tuberculosis seen in infancy the bacillus found has been of the human type, not the bovine type. This shows the great cause to be, not milk from infected cows, but contact with human tuberculosis. It is evident then that no great headway is to be made in controlling infantile tuberculosis by sterilizing milk, nor simply by improving general hygiene, but only through careful separation of infants from cases of tuberculosis, especially of the lungs, in older persons.

Again, the best methods of infant feeding must be elaborated in the hospital. Progress here is to be made by the careful study of a few, rather than by statistical results obtained by observation of large numbers of infants. As recently as five or six years ago it was thought that the proteids of cow's milk were responsible for most of our difficulties and failures in artificial feeding. Recent studies, most elaborately carried out in hospitals, have shown that the proteids are seldom at fault, but that it is much more often the fats, or the sugars, which are to be blamed. All our efforts directed toward rendering the proteids more digestible by varying the diluent, peptonizing, etc., were quite beside the mark.

Until a very few years ago it was generally accepted that acute febrile conditions accompanied by diarrhoea, in infants who were artificially fed were due to infection, generally through milk, sometimes through other food; and it was believed that by sterilizing milk these attacks would in large measure be prevented. It has now been conclusively shown that, though the food itself may be pure, acute intoxications of the most alarming sort may be the result of the faulty chemistry of digestion, due to a relative excess of certain food elements, which, for the time being, the child is unable to bear. Such facts are of fundamental importance. Correct ideas of infantile digestion not only change our theories of

infant feeding; they also in some cases quite revolutionize our every-day practice in the milk station and the home.

It is only in a hospital that certain conditions which cannot be properly managed in the dwellings of the poor, or even in the average home, can receive adequate treatment. Some of these are the most severe forms of acute disease of the intestines or lungs; others are cases demanding special equipment and skilled management, like premature infants and diseases needing special forms of treatment, such as hemorrhagic conditions needing transfusion, cerebro-spinal meningitis requiring lumbar puncture and serum injections; still other conditions needing surgical intervention, such as intussusception, strangulated hernia, appendicitis, empyema, diphtheria of the larynx or pyloric stenosis. Why not the general hospital for these? you ask. Simply for the reason that, though in the general hospital the operation may be perfectly done, such institutions are seldom furnished with the trained nursing or the special knowledge which the after-care of these patients requires if they are to be saved. One may reply that none of these diseases mentioned are very frequent. Yes, but together they make up a large number of infant deaths, since outside of a hospital the great majority of them are almost certain to end fatally.

Well babies can be fed; a knowledge of the general means of preventing disease can be imparted, and even many mild forms of illness can be treated by the visiting physician or nurse in the homes of the poor. But with very many of the more serious conditions children must be sent to hospitals if life is to be saved. Let the visiting nurse and the dispensary physician also realize their limitations, and not attempt to treat very sick infants in their homes, but send them to a hospital, where they can be properly cared for, and send them early, not waiting until the symptoms are so bad that the condition is practically a hopeless one.

It is to the modern hospitals, with their well-equipped laboratories, their trained staff of workers, their wards furnishing opportunities for the most careful study of individual children, that we must look, not only for progress in the diagnosis and treatment of disease in infants, but for more exact knowledge in the problems of infant hygiene and nutrition upon which prevention of infant deaths is based. It is only in hospital wards that new ideas in infant feeding, in the diagnosis or treatment of disease can be put to the practical test to see how much of value they may possess. This can be done only to a limited extent in private practice and in out-patient work. The infants must be where all the condi-

tions of life can be controlled and all symptoms watched with the closest attention, and this is possible only in a hospital. But the provision for patients must be of the very best, both as regards hygienic surroundings and medical and nursing care.

The risks of infection necessitate that we must, in hospital wards for infants, aim at conditions which at present are in most institutions realized only in the surgical operating room. You may perhaps think that this is impractical or not worth while. But so surgeons once thought of rigid asepsis. While hospital work for infants is admittedly difficult, when it is properly done the results will bear comparison with those obtained in any other department of medicine.

I have deferred until the last what may perhaps be considered the most important function of the babies' hospital in its relation to the problem of infant mortality. This is its part in education. The educational value to the public of an up-to-date special hospital can hardly be overestimated. It does much for the community besides caring for the sick poor. It sets a standard of medical practice for the profession of the city. It is an exponent of modern science in its particular field. Here should the best hygiene be illustrated, the most intelligent feeding practised, and the best care of the infant, sick or well, be exemplified. From those immediately connected with the hospital as doctors, nurses and managers these ideas gradually spread to the general public, and the institution takes its place in the community among the great forces for social uplift in the department of child welfare.

Opportunities are afforded first of all to the attending medical staff. Only in such a field can men be given the range of experience which enables them to be the leaders of thought in all matters relating to the health of young children. The hospital and the specialist are indissolubly connected. The hospital cannot be effectively carried on without the direction of the specialist, and without the hospital the trained specialist is impossible.

The next group benefitted by the educational advantage of the hospital are the medical house staff. From the former resident internes are recruited our best trained junior physicians for the dispensary, the milk depots and school inspection. Nowhere else than in a good hospital can be obtained the opportunities and experience required in all these activities. From the former resident physicians come also the specialists of the future.

If the hospital is utilized, as it should be, for the instruction of medical students, its influence is greatly widened.

After graduation these men are scattered all over our country, and many distant communities thus become beneficiaries of the hospital work. No single agency for the reduction of infant mortality can do as much as that which educates the medical profession, through which the public is ultimately reached.

For directly affecting the problem of infant mortality we must not omit to emphasize the great value of the babies' hospital in the instruction of nurses. While it is, no doubt, true that any nurse with good sense can instruct an ignorant mother in many things relating to the care and feeding of her baby, the efficiency of such a nurse is immensely increased if she has had the advantage of a service in a babies' hospital, or a well-conducted infants' ward in a general hospital. Only in this way can she obtain that first-hand knowledge which is indispensable if she is to do her work well. One of the weakest points in our present system of visiting district nursing is our failure to provide for their suitable training. Something can, of course, be done by special courses of lectures, such as are given in some cities to their corps of visiting nurses; but this instruction is of necessity very superficial. We must go much further than give a few general lectures on infant hygiene and emergencies, and teach how to make up four or five standard milk formulas. The visiting nurse must work much of the time without close supervision, and act on her own initiative; unless specially trained her work, though carried on with a praiseworthy devotion, may be very inferior. We must insist that at least our superintending nurses, whom we hold responsible for directing their subordinates in their work, shall have received an adequate training in a special hospital for infants. Otherwise a vast amount of *misinformation* is disseminated which subsequent educational efforts find it difficult to remove. But not only must trained nurses be taught in a babies' hospital a knowledge of children and their diseases, a school for the training of nursery maids should be established as a part of the institution. The need of the public in this respect is so great that the opportunities which the hospital affords to give this instruction should be fully utilized. This is a by-product of hospital organization and operation which is of great importance.

Since the largest part of the work for the reduction of infant mortality lies in the direction of the prevention, rather than the cure of disease, it follows that only a small part of it can of necessity be actually done in hospital wards. But the line of work undertaken must be largely based upon hos-

pital experience. By it rules can be formulated and policies determined according to which the general outside campaign is to be conducted to accomplish the results aimed at. We must know how a disease is spread if we are to prevent it. We must know accurately the principles of infant feeding if we are to reduce deaths from marasmus and acute intestinal disease in artificially-fed children. Ignorance is not conditioned upon poverty, though it is more frequently found among the poor than the well-to-do.

Much good could, of course, be accomplished if the acquisition of no new knowledge were attempted, and all our efforts were directed simply toward making general application of the knowledge we now possess. But progress would be only for a time; soon we would come to a standstill. Ultimate success in the saving of infant life will demand the use of every new fact in science that bears even indirectly upon our problem. Such facts are being discovered every year, and our work must grow in intelligence as fast as science develops.

It has been well said that to overthrow old errors is quite as important as to discover new truth, and in this respect also the hospital has furnished notable contributions. Thus as knowledge advances and experience widens our wasted and mistaken efforts become fewer, and every step taken is a forward one. At the very fountain head of such a broad movement as that for the reduction of infant mortality we must have continually at work a group of investigators, who shall tell us what is important and what is unnecessary or superfluous, who shall be a perpetual check, and at the same time constant stimulus to our efforts. While we want the whole truth, we want nothing but the truth.

I have said that the activities for the reduction of infant mortality are statistical, preventive and curative. Along each one of these different lines the babies' hospitals have distinct and important contributions to make. If they are to do their part, they must have proper buildings, well-equipped laboratories for chemical and pathological studies, a corps of attending specialists, and an adequate nursing staff. Organized on this high plane, their field of usefulness is a very large one, not only in advancing this special department of medicine, but furnishing the groundwork upon which a proper knowledge of the child, sick or well, must stand.

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*** REPORT**

**THE DEPARTMENT OF HEALTH'S ACTIVITY IN LESSENING
INFANT MORTALITY IN PENNSYLVANIA**

Presented by

**B. FRANKLIN ROYER, M. D., Chief Medical Inspector, Department of Health, Commonwealth of Pennsylvania,
Harrisburg, Pa.**

Conservation of infant life has been one of the educational themes of the Department of Health of the Commonwealth of Pennsylvania since its organization, in 1905. The earliest teaching was carried on almost entirely through the newspapers of the State. The first great impetus in the campaign was given by the publication of our circular, "Save the Babies," in May, 1909. So popular did this single piece of literature become that before the end of the first summer it had been published in nearly every newspaper in the State, and in full in two different issues of one of the largest daily newspapers in Philadelphia. More than 300,000 copies of this circular have been distributed in English since it was first issued, and within the past year we have had it translated into German, Italian, Polish, Slovak, Yiddish and Lithuanian. Nearly every one of the foreign newspapers in the State used the translated circular in full. "Save the Babies" has been copied in good part by at least three Western States, and the catchy caption has been used in a dozen or more standard pieces of literature in the various states of the Union.

With the publication of bulletins 7, 8, 9, 14 and 16, during the years 1909 and 1910, further impetus was given to the baby-saving campaign.

Early in 1910 our comprehensive scheme for the study of vital statistics relating to infant mortality, comprising a study of births, deaths and marriages, was worked out and displayed at the annual meeting of this society in Baltimore. During the same year a new system of statistical tables was introduced relating to the causes of infant mortality, the plan being to group the causes of the 35,000 or more dying in the year 1910 by days during the first week, by weeks during the first month, and by months during the first year. This comprehensive analysis forcibly illustrated the direction which our infant mortality campaign should take, and impressed

* Presented at the Session Thursday morning, October 3, 1912.

upon us the importance of both post natal and prenatal care. These statistical studies, then, formed the basis for our later work, and prompted us to give the widest possible circulation to literature already published; showed us the necessity for further activity on the part of our 110 sociological nurses connected with the Department's tuberculosis dispensaries, and for greater vigilance of the Department's 670 health officers who had been making semi-annual dairy inspection in the rural districts.

The Department planned a more active campaign for 1912, and made its first graphic display during that marvelous Baby-Saving Show held in Philadelphia from the 18th to the 26th of May. About the time this show ended we published a bulletin on "How to Organize a Baby-Saving Show." This bulletin, copy of which can be had by members of the Association, was sent to every local board of health in the Commonwealth, and to the executive officers of civic clubs, mothers' clubs and charitable, philanthropic and sociological organizations in the State, and was largely responsible for enlisting active support from all of these agencies.

The statistical material and graphic charts displayed in Philadelphia were blue-printed, so that any number of cities in the Commonwealth might be supplied with these data at the same time. In addition to Philadelphia's Baby-Saving Show, where the Department made an exhibit, active campaigns for the lessening of infant mortality were conducted in Reading, Wilkes-Barre, Erie, Carlisle, Chambersburg, Waynesboro, Brookville, Stewartstown and Emmenton. A duplicate of the entire display has been added to the Traveling Tuberculosis and Sanitary Exhibit, and will be shown at all of the large county fairs in the State. Infant Mortality campaigns were conducted in a number of different sections of the State at the same time, as many as three cities having exhibits during one week. This work has been followed by the charitable, philanthropic and sociological workers with great interest. The press of the State has given powerful aid, and a step forward has been taken in 1912 that is already showing results in the lessening of the needless loss of baby life.

The bulletin, you will note, is intended to enlist the support and co-operation of all interested agencies, especially in communities where infant mortality is high, and at the same time to be helpful to organizations ready to do effective work. Both it and the exhibit are designed with the thought of stimulating citizens' committees to feel that they are doing the work themselves, the plan being to have the Department

supplement material collected by local organizations. The State furnishes statistics for the Commonwealth-at-large, and in some of the great cities tabulated data referring to that particular city's death rate. These statistics are all arranged in tabular form, and also in graphic form, easily comprehended by lay minds. It was found to be practical to display with the statistical data many mottoes, epigrams and pictures that would appeal directly to the minds and hearts of lay people, and carry home pictorial lessons in a pleasing and effective way.

An attractive feature of the statistical exhibit worthy of especial mention was a diagram showing accurately the proportion of deaths to 1,000 of population at each quin-quennial period, using white and red globules, or pills, to give individuality to the diagram. Some of you, perhaps, have seen this illustration, and may have noted how it appealed to students of infant mortality, as well as to the casual visitor. Especially was this true when the curve of death impressed upon them the great harvest reaped at life's extremes. These two illustrations made even the dry statistical question a live issue to every visitor at the exhibit. In the pictorial display a few photographs are worthy of mention because of the interest they aroused, and because of the educational advantage offered through their use in the daily papers. A photograph of a mother suffering with tuberculosis having a baby lying in her lap, a spoonful of hot food between her lips, was properly labeled "The Taste of Death," carrying underneath the legend, "How diseases often supposed to be hereditary are transmitted."

Another photograph showing the open milk pitcher set on the doorstep, a cat lapping its contents, carrying the legend, "The open milk pitcher is Kitty's delight. Moral: Set out a covered container and prevent animal pollution."

A picture of a bright, laughing baby boy in his tub carrying the caption "Health."

The photograph of one of the Department's sociological nurses in uniform in the insanitary home of a poor tuberculous mother, giving instructions in bathing the baby, with the legend, "Baby's Bath—An Event in the Family."

A picture showing another of the Department's nurses instructing a mother in the preparation of the baby's food, with the caption, "Practical preventive work among the babies," and photographs equally graphic impressing the importance of fresh air, and others showing grossly insanitary back yards, with dangerous surface drainage. In the pictorial

display we have a picture of the hospital for infants and children in the State Sanatorium at Mont Alto.

Among the mottoes displayed were such epigrams as these:

"A baby has the right to be well born. Its choice of parents is not its own."

"If at all possible, a mother should not sub-let her job to a cow."

"Infant mortality is the 'yardstick' for measuring the height of social welfare and the breadth of human efficiency."

"The prompt and complete registration of every birth is a legal and sanitary necessity, owing alike to child and to State."

"Infancy and Old Age are comrades in death. The man of 84 stands a somewhat better chance of living one week than does the baby at birth."

"The wordless sobs of suffering babyhood should outshine the eloquence of all ages and all languages."

"Two hundred men in Pennsylvania toil each day in digging graves for people who die untimely deaths from preventable causes. One-half of these graves are for babies."

"The yearly failure of one business enterprise in every ten would mean a perpetual panic. The yearly loss of one baby in every seven born creates simply a mild alarm."

"A nation without abundant and healthy children is but a few generations removed from degeneracy."

"The 'S. O. S.' call of helpless infancy should not be unanswered by twentieth century civilization."

"Vital statistics flash the wireless messages of death from lips that have never learned to speak."

"A government's interest in human life should be begun before conception, and end only in the grave."

"Each and every child should be a ward of the State and Nation. It should not have to be an orphan to become such. Asylums and Foundlings' homes make comparatively poor stepmothers."

"Prematurity or immaturity very often means over-working, over-breeding or under-feeding, and too often a want of understanding."

"Infant Mortality, in its totality, should include the prenatal mortality occurring between the fourth month of utero-gestation and birth, amounting to 9,587 deaths per year. These are recorded as stillbirths, and do not appear in mortality tables."

"If babies' bottles were blown in the shape of coffins, they might hint at possible tragedies."

"The minute analysis of death of infants by days, weeks and months for the principal causes of death forcibly illustrates the direction which prenatal, as well as postnatal, preventive measures must take in order to be most effective."

The surprising part, and it ought not to have been so surprising, either, was the very great interest taken in this campaign by the public and by the press. We had anticipated that in the larger municipalities much interest could be aroused and a fair attendance could be secured. We had hardly supposed at the beginning, however, that an exhibit could be organized in practically all large centers of population in the Commonwealth, and were hardly prepared for it. Nor did we suppose in the beginning that many local communities would work out such highly creditable exhibits showing by contrast sanitary and insanitary rooms; hurtful and helpful things for babies; inexpensive nurseries; cheap, healthful outfits or babies; proper demonstration of the hygiene of the lying-in chamber, including the mother's outfit, and so on; nor did we think that thousands of the very people we wanted to reach could be induced to visit the display daily, and listen for hours to hygienic teaching given by a corps of speakers. So great was the interest aroused that, taking one of the smaller towns, Waynesboro, for example, with a population of 7,000, as many as 900 citizens from all walks of life, many of them from the very walks we were most anxious to reach, turned out two and three times daily for a week listening to lectures, carefully arranged in advance, given by local doctors and by representatives of the Department. All of the speakers gave their lectures in popular language, and where possible illustrated their talks with lantern demonstration. The newspaper of the town devoted from four to ten columns a day to publishing reports of the exhibit and the lectures delivered.

On the whole, our work for the summer of 1912 has been highly successful. Nearly 70,000 people saw the Department's exhibit at the Philadelphia Baby-Saving Show; at least 75,000 more saw the exhibits in the various towns and cities where exhibitions were held, and by the time the County Fairs are over several hundred thousand additional people will have visited and studied our exhibits.

Many thousands of pieces of literature were distributed during the time the exhibition was being held in various cities, and are still being distributed at the various county fairs. "Save the Babies," the most popular circular, is furnished in seven languages; "How to Secure and Care for the Home Milk Supply," in five languages; Suggestions Concern-

ing the Importance of Birth Registration, in five languages, and Suggestions Concerning Care of Eyes of the New-born in English.

Plans are already under way for at least a dozen city exhibits during the early spring and summer months of next year, and it looks promising now that we may be able to reach all of the large centers of population and many smaller municipalities before the end of 1913.

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SECTION ON BIRTH REGISTRATION

Thursday, October 3, 10.15 A. M.

CHAIRMAN

WILMER R. BATT, M. D., Harrisburg, Penna.

INTRODUCTORY STATEMENT BY THE CHAIRMAN:

In proceeding to the consideration of the topics before this section, I wish to recall a statement made by the President of this Association, some years ago to the effect that Vital Statistics was the Cinderella of modern medicine, for the reason that she sat by the fireside sifting the dusty figures while her sisters, Hygiene and Bacteriology, danced away the hours at the ball. The activities of this Association in studying social problems seem to point out that the Prince has arrived and that in the future Cinderella, in the guise of Vital Statistics will dance merrily with her sisters; and she even bids fair to lead the dance. It is growing more evident from day to day that vital statistics is the fundamental social service which must be complete in all its details before preventive work of this kind can be effective. In preparing the program for this section papers have been provided on topics of general interest so far as birth registration is concerned, the idea being to couple up with some collateral issues to which birth registration is essential.

The report of the Committee on Birth Registration is very brief. The Association has gone on record unequivocally at each of its annual meetings in regard to the importance of birth registration. It does not seem necessary, therefore, to reiterate its position on that subject.

The report of the Committee follows:

REPORT OF COMMITTEE ON BIRTH REGISTRATION

BY THE CHAIRMAN

The American Association for Study and Prevention of Infant Mortality has, in the brief period of its existence, most successfully advertised the baby as our greatest national asset. From being regarded as a common, inexhaustible and very natural product of life, the baby has been elevated to the realm of precious things, whose possession and cultivation is the first concern and just pride of a people collectively as well as individually.

This world-wide effort to give the baby a "square deal" in life has not only enlisted the sympathy and support of thoughtful and generous people, but it has opened up new avenues of activity in social work, and developed new methods of approach to those who live and toil in mental and physical oppression.

No phase of this subject has received a greater impetus than the registration of births. The direct influence of this Association has been very evident in this line of work. It must be quite apparent, however, from the many lines of influence that have been found to converge on the baby, its prenatal, as well as its postnatal existence, that birth statistics, indispensable as they may be, are in reality but a small portion of the knowledge we must possess if we would attack this problem intelligently. We cannot ignore the parents, their racial characteristics, their occupations and their environment. We must have marriage statistics; we must study the soil from which future generations are coming; we must have occupational statistics of women to understand the influence of labor on the age of marriage, on the relative fecundity of mothers, the health of the offspring and similar problems; we must have statistics which will help us to measure the influence of social and economic pressure on the number, physical endowments and vital chances of babies. The gateway to a better understanding of the complex problems of life is opened by our efforts to conserve the life of infants. To this end, therefore, it is submitted that the title of the Committee on Birth Registration be changed in accordance with the following resolution:

**Resolved*, In order that there may be developed exhaustive statistical studies of those problems that influence infant mortality in so many diverse ways, the title of the Committee on Birth Registration be changed to the Committee on Vital and Social Statistics; also

Resolved, That the Association for Study and Prevention of Infant Mortality recommend, in addition to birth and mortality statistics, the collection and compilation of marriage, divorce, industrial and all such social statistics as may have a relation to the problem of infant mortality.

(Signed) WILMER R. BATT, M. D., Registrar of Vital Statistics, State Department of Health, Harrisburg, Pa., *Chairman*
WM. H. DAVIS, M. D., Vital Statistician, Boston Health Department
ELMER W. EHLER, Chief Clerk, Bureau of Vital Statistics, State Department of Health, Harrisburg, Pa.
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* The resolutions were referred to the Committee on Resolutions; were favorably reported; and adopted by the Association at the closing session, Friday, October 4.

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**THE UTILIZATION OF BIRTH RECORDS IN THE PRACTICAL
ADMINISTRATION OF BUREAUS OF CHILD LABOR,
TENEMENT HOUSE INSPECTION, COMPULSORY
SCHOOL ATTENDANCE, INFANT HYGIENE
AND SIMILAR AGENCIES**

**By WILLIAM H. GUILFOY, M. D., Registrar of Records, Department
of Health, New York City**

The consideration of birth records from the utilitarian or commercial point of view, whilst it robs the subject of its sentimental aspect, is one that might well occupy our deliberations for a few passing moments. It is true that the nobler and more dramatic, so to speak, phases of the registration of births holds the center of the stage at the present time, and justly so, for it is eminently fit and proper that an association so named as this should, above all things, consider, nay, cherish the sentimental, the maternal-aiding, the maternal-saving side of the question, rather than that of the mere subsidiary one of ephemeral utility. Therefore, the necessity of referring to this angular view of the situation may be defended on the ground that it is a reflection of the trend of the age in which we live. The American people have been accused of money madness, and justly so. Column upon column, page upon page, of our daily and weekly press are devoted to the passing events in the stock, grain, cotton and oil markets; the prices of last year and of the last decennium are compared with present ones and fluctuations carefully noted. The daily toll exacted by the grim destroyer is lost sight of, the massacre of the infants unnoted. Admit, though we may, that the accumulation of immense fortunes has in a few instances resulted in the foundation of institutions devoted to the extermination of disease, no denial can be truthfully uttered that the immense majority of our "moneyed" men and women have entirely overlooked the great problems confronting this and other associations in the battle for the conservation of human life. Noblesse oblige and naught save nobility of character, love of neighbor and desire to do good are the mental and moral attributes which can be ascribed to the self-sacrificing men and women of this Association, and in my humble official capacity I beg to be allowed to call attention to their high ideals and excellent work in the saving of lives of the helpless little ones of our country.

CHILD LABOR REQUISITES OF NEW YORK STATE

Two decades ago the law towards the betterment of the conditions attendant upon the employment of children went into effect, and the first bars were put up towards the curbing of the rapacious employer and the unprincipled parent; the child entering into a new sphere of action was compelled to furnish proof of age, and the first element of such proof was the production of a certificate of birth from the local health officer or registrar; it was then that the flouting of the law upon the part of physicians and midwives was made evident; the registration of births, although compulsory under the law, and although adequate penalty was provided thereunder, was neglected by 40 per cent of the medical attendants of the City of New York. The law provided, and still provides, that in the absence of registration at the Health Department, the baptismal certificate or other proof of birth could be accepted by the official granting the employment certificate, and in consequence of this provision the more complete registration of births was considerably improved, especially among the Jewish population, who were unable to furnish the secondary proofs provided for in the absence of official registration, and who were compelled to obtain a certificate of birth from the physician or midwife in attendance at the time of birth, the affidavits of two citizens; in consequence the physician was berated for his neglect in the matter. In thousands of cases attempts were made to obtain employment certificates for children who were under the age of fourteen years, but the lack of official and other proofs of the dates of birth prevented these attempted violations of the law, and many children of the age of eleven, twelve or thirteen years were rightfully returned to the schoolroom, notwithstanding the tearful protests of the parents. The number of searches made by the Department of Health without cost to the applicant for the purpose of obtaining employment amounted to 22,859 in the year 1911 in the Borough of Manhattan.

TENEMENT HOUSE INSPECTION

The birth records of the Department of Health are not made use of by the Tenement House Department of the city government, as the law creating the latter department does not provide for the keeping of records of infants born in the tenement houses, though it does provide for the keeping of records of all deaths occurring in these houses. These latter records are obtained by the Department of Health granting permission to the Tenement House Department to copy the

records of such deaths as the law requires it to keep. We who are interested in the subject of infant mortality know of its value as an index of the sanitary conditions of town, city or state, and it is, therefore, surprising that the Tenement House Department has made no effort to compile data as to the mortality among infants based upon 1,000 births in this form of dwelling. From studies made by me it has been found, as one would expect, that the infant mortality in tenement houses is far and away above that of the city at large, this latter being about 106 during 1911, whilst that in tenement-house sections has varied between 140 and 300 per 1,000 infants born therein. May I, therefore, suggest that a resolution be adopted by the committee on birth registration looking to the necessity of an intensive study of infant mortality occurring in tenement houses being made with the intent of instituting comparisons with that occurring in private dwellings and institutions.

COMPULSORY SCHOOL ATTENDANCE

About six years ago the Department of Education, in order to exclude from the public schools the children under school age, made it obligatory upon children seeking admission to present a statement from the Department of Health as to the exact age of the applicant. The stupendous increase in the population of the City of New York within the past ten years was so rapid that the city authorities were unable to keep pace by furnishing a seat for every child of school age, and in consequence the exclusion of children below the age of six years was determined on, in order to lessen as much as possible the necessity of part-time classes in the schoolhouse, and with that end in view the Department of Health was called upon to use its birth records to help out the dilemma in which the educational authorities found themselves. This necessitated the making of thirty thousand additional searches in the year 1900, and this number has grown, until in 1911 about 50,000 searches were made in order to enable children to obtain admission into school. There is no charge made for the furnishing of these birth statements.

This demand upon the Registrar's Office had as a sequence the discovery of many cases in which the physicians and midwives, especially the former, had neglected to file certificates of births. Upon the discovery of these violations of the law (which, by the way, were outlawed at the end of two years, estopping legal proceedings by the Department for punishment of the delinquents) the parent was compelled to obtain

a certificate of birth from the medical attendant, to prepare or have prepared a sworn petition asking for the filing of this belated certificate in the Special Book for Delayed Certificates, and to furnish the affidavits of two witnesses, citizens of the United States, who had personal knowledge of the occurrence of the birth. The result of the thousands of visits to the medical attendant by the parent, made necessary by a stringent compliance with the law for the filing of delayed birth certificates, was that the physician and midwife, after acrimonious heart-to-heart talks with their clientele, reached the conclusion that they would be compelled to furnish a certificate of birth sooner or later. The expense of furnishing affidavits to the Department of Health put the parent in a frame of mind antagonistic to the employment of the guilty medical attendant in future family happenings, and many were the complaints by physicians that their patients were turning against them by reason of the action of the Department in putting the parents to expense, trouble and loss of time. The Department did not, could not, vary its procedure in the matter, so that the final outcome has been a more ready compliance with the law. In addition to this, a new administration made it possible to proceed legally against the few individuals who still ignored the law in the matter, and against those who did not comply strictly with the requirement that birth certificates be filed within ten days after their occurrence; over 300 physicians have been fined from ten dollars to one hundred dollars, mostly for technical violations of the law within the past two years; contrary to existing impressions, the midwives who violated the law were very few. A further incentive to complete registration was the adoption of a resolution by the Board of Health directing the Registrar to acknowledge the receipt of each and every certificate of birth.

I would recommend that in every city in which fairly complete registration of births is not obtained, measures be taken compelling every applicant for admission into school to furnish a statement as to his birth from the local health department. It will mean work upon the part of the local registrar, but in the end it will serve as a tremendous stimulus to a compliance with the law upon the part of the physician and midwife.

INFANT HYGIENE

The benefits of using the records of births of infants by sanitary officials and philanthropic societies in their efforts to minimize the mortality among infants are many and im-

mediate. We all realize that in order to cure a cancerous growth the operation must be performed as soon as possible, and in order to conserve the lives of infants, especially among the uneducated and ignorant portions of the community, the quicker we reach such parents the greater the hope of infant salvation. Advantage has been repeatedly taken by the authorities of the records of births to reach recent mothers with the best results. This phase of utilization of the birth records is so evident that further consideration is not necessary.

CIVIL SERVICE EXAMINATIONS

Within the past two years applicants for certain positions in the classified civil service have been compelled to furnish certified copies of the records of their births before they were permitted to take the necessary examinations. As these positions include those of policemen, firemen and inspectors, the numbers having recourse to the birth records amount to several thousands.

LEGAL AND ENTAIL PROCEDURE

The number of searches made with the end in view of proving age has been a constant quantity for many years. In criminal cases the pivot upon which the legal innocence or guilt of the accused revolves is the proof of age, and the law provides for the acceptance by the court of certified copies of the records. In civil cases, such as passing of title, inheritance by minors, etc., much use is made of the records of birth.

COMPLIANCE WITH REQUIREMENTS OF FOREIGN PROCEDURE IN MARRIAGE CONTRACTS

Quite a few of the countries of Continental Europe require as a necessary concomitant of contraction of the marriage relation that certificates of birth be produced, and upon a number of occasions the records of births are consulted in order to obtain a certified copy in cases where one of the contracting parties is American born.

In 1911 the number of searches of all records in the office of the Registrar was over 160,000. Sixty thousand of these were for certified copies of certificates of death; 5,000 for copies of marriage certificates, and the remainder, about 95,000, were searches of the birth records, 95 per cent of these latter for school and employment purposes.

I mention these figures to give an idea of the demand made for the various purposes specified. This demand will undoubtedly grow, and with it will come the realization of the hope of every registrar and health officer—a complete record of the births, marriages and deaths of the community wherein he holds office.

THE LEGAL IMPORTANCE OF BIRTH REGISTRATION

**By ELMER W. EHLER, Chief Clerk, Bureau of Vital Statistics,
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Reasons demanding the registration of births and deaths, stated in increasing order of importance, have been given as follows: (1) Knowledge of the movement of population (demographic uses); (2) protection of the lives and health of the people (sanitary uses), and (3) protection of the rights of the individual and of the community (legal uses).

So far as death returns are concerned, the propriety of this order has been questioned, because in this country the sanitary uses of vital statistics have apparently quite overshadowed their importance as legal records. Modern public health administration is largely dependent upon reliable mortality statistics, and this "Sanitary Era" which is yearly witnessing greater triumphs in the conquest of disease, had its inauguration in the beginning of national registration of births and deaths in England in 1836.

Nevertheless, the registration of vital statistics was not primarily instituted for purposes of public health, but to secure proper records of the vital events of human life for legal purposes, and in the long run this is perhaps the most important service performed by a system of governmental registration. The neglect of birth registration in the United States, which has resulted in a one-sided development of vital statistics, is partly due to the fact that for sanitary purposes the registration of deaths has until very recently been considered more important than the registration of births, and hence the latter has been seriously neglected. The growing recognition of the child, its rights and its conservation, is rapidly reversing this attitude.

The frequent necessity of legal proof of birth is the best evidence of importance. In an enlightened community there live but few people of mature age whose birth does not at some time become a matter for the cognizance and consideration of legal authorities. The attainment of majority, with its rights and duties, the inheritance or conveyance of property, parentage, nationality, place, date of birth and many

other questions of a sociological, or even historical, character often assume much importance with reference to many of our citizens.

Some instances in which the evidence furnished by an accurate registration of births may prove to be of the greatest value are found in questions of descent, not only under the intestate laws of the various states of the Union, but also under provisions in wills; the usual limitation being to a trustee to pay over the interest or profits until the arrival of the cestui que trust at his or her legal majority. The termination of the trust, the settlement of the trustee's account, the auditing thereof, and the payment over to the beneficiary absolutely are all dependent upon the proper proof of the attainment of majority. The trustee may have the interests of several minors under his supervision. Each of same may have different guardians, in which case the relations of the guardians and their wards are terminated upon proof of the acquirement of legal age. Estates have even been given upon condition that the heir remain unmarried until the attainment of majority or of a fixed age, upon breach of which condition the estate was to go over to other persons; or upon condition that the taker shall marry before the attainment of a fixed age. In all of the foregoing the rights of the parties interested are made to depend upon the proof of the correct age of one of the persons, in other words, upon the proof of birth. It is universally held that minors are not liable upon their contracts. The plea of infancy has perhaps been the basis of loss to a large number of commercial institutions in suits upon contracts of various kinds. It is true that the mere setting up of such a plea in order to avoid liability in most cases is indicative of untrustworthiness, yet the establishment of infancy at the time of making the contract and failure to ratify same after majority is a sufficient defense. In Pennsylvania it has even been held that a minor is not liable for his torts growing out of a contract.

In a large number of states an age is fixed below which youthful criminals are entitled to be tried for their offenses in private courts styled "Juvenile Courts." If they exceed the age limit, they are relegated to the public courts where adult confirmed criminals are dealt with. If the age requirements are fulfilled, so far as the execution of the sentence is concerned, they are entitled to be placed in a reformatory instead of a penitentiary. The importance of a wayward child securing these benefits cannot be overestimated. The state, however, considering the salutary effects of such treat-

ment upon youthful minds, has not deemed the burden of the expenditure necessitated by such special trials and schooling warranted beyond a fixed age. The date of birth is the determining feature here, as well as in the settlement of insurance and pensions. Under Section 4703, Revised Statutes of the United States, widows' pensions were increased from and after July 25, 1866, at the rate of two dollars per month for each child under the age of sixteen years of the husband on account of whose death the claim for pension was made, under the conditions therein provided. Section 4706 gives the legitimate minor children of a soldier or sailor whose death resulted from a disability incurred while in the military or naval service of the United States, and in the line of duty since March 4, 1861, a pension in his or her own right, in cases where the soldier left no widow surviving, or where the widow died, remarried or was otherwise deprived of a pensionable status before the child attained the age of sixteen. The Act of June 27, 1890, provides, in part, for the continuation of pension or increase of pension granted in behalf of a child under sixteen years of age who, when that age was attained, was insane, idiotic, or otherwise permanently helpless, to continue during the life of said child or the period of its disability. These laws render necessary the best evidence of the date of birth of a given child in whose behalf increase of pension or pension is claimed.

Foreign governments require in a number of instances certified copies of birth certificates showing parentage, residence and other data bearing upon legacies or descent of property. In procuring marriage licenses the matter of consent of parent or guardian is dependent upon the age of the contracting parties. The exercise of franchise, the right to serve upon juries, service in the militia, admission to practice in the different professions and constitutional requirements as to ages of holders of public office, all render necessary proof of age.

Age requirements are also found in the admission of children to schools, and in the regulation of child labor. In certain criminal cases the burden of proof is shifted because of the establishment of a certain age of the defendant, the general common law rule being that below the age of seven an irrebuttable presumption of incapacity exists. The incapacity here refers to the mental state necessary to understand the crime committed, or to form the legal intent. Between the ages of seven and fourteen a rebuttable presumption of incapacity arises. Above the age of fourteen the presumption is that defendant has criminal capacity, and the burden is

upon him to rebut the presumption. By statute age limits are fixed below which females are held to be unable to consent to intercourse. The further enumeration of instances of this kind would merely be a work of supererogation.

It is very evident, however, that the private interest of the citizen in the proof of his birth is greatly enhanced upon the realization that a great proportion of his privileges and immunities, rights and duties turn upon the question of his age. The increasing density of population and consequent sharpened struggle for existence will make these hitherto matters of minor significance acquire a much greater importance.

Courts have always insisted upon the proof of facts by the best evidence obtainable. This has given rise to the general principle forbidding the admission of hearsay evidence. Exceptions to this rule are permitted, but only on the ground of necessity or extreme inconvenience. There is no generally accepted and uniform principle, even within each exception, still there is this general notion that for the exception to exist at all there must be some kind of a necessity for the reception of hearsay assertions. In old English cases of pedigree, declarations of servants, and even of neighbors, have been admitted. But later the law resorted to hearsay evidence in cases of pedigree upon the ground of related interest of the declarants in the person from whom descent is made out, and their consequent interest in knowing the connections of the family. The rule of admission being restricted to the declarations of deceased persons who were related by blood or marriage to the person, and, therefore, interested in the succession in question; and general repute in the family from the testimony of a surviving member. Testimony as to one's own age is regarded as in effect testimony to the family reputation, the reputation being admissible under the present exception, this line as to age being drawn at relatives and family members, although in some of the state courts declarations from intimate acquaintances have by several judges been thought admissible. Even reputation in the neighborhood as to age under certain local conditions has been held admissible. The term pedigree embraces not only descent and relationship, but also the facts of birth and marriage and death, and the times when these events happened. The form of the declaration was sometimes an entry by a deceased parent or other relative made in a Bible, family missal or any other book, or in any document or paper stating the fact and date of the birth, but it was, nevertheless, regarded as a declaration of such parent or relative in a matter

of pedigree. Correspondence of deceased members of the family, inscriptions on tombstones and other funeral monuments, engravings on rings, inscriptions on family portraits and charts have also been resorted to.

This form of pedigree evidence was the only form that could be used in the most important controversies where the question was whether a certain line of genealogy could be established, and was first confined to such cases. It afterwards was extended, and became of use in ejectments for land, pleas of infancy to a promissory note, suits for amounts of life insurance policies, prosecutions for serious offenses upon those under the age of consent, selling liquor to a minor, penalty for marrying a minor and other proceedings, civil and criminal.

The availability of this kind of evidence was always uncertain. Rights and privileges were placed in jeopardy and entirely lost by the lack thereof. Even when available, its untrustworthiness from failure of correct memory was apparent. Some instances occurred at the Pension Bureau, where applicants for widows' pensions found it impossible to establish dates of birth of alleged minors for whom increase was claimed, with the result of an adjudication of their title to a pension per se, and the holding in abeyance of the increase, which was never received, owing to a failure to submit the proper proof.

What constitutes the best evidence concerning a birth as to time, place and parentage? This question is best answered by the principles established in appraising the value of evidence in certain civil actions. When a contract is reduced to writing for the purpose of perpetuating and definitely fixing the terms thereof, it is held that the best evidence of the contract is the writing itself. For the purpose of preventing frauds some contracts are expressly required to be in writing by statute. Therefore, the best evidence of the facts concerning a birth is a compulsory written public record made at the time of birth, or very soon thereafter, by the person in attendance, or by the parents themselves. In order to insure efficiency and thoroughness, of course, there should be a penalty for the failure to comply with the requirements as finally established. The child is incapable of protecting its future interests at this time, and the record must of necessity be made by some other person. The personal interests of the child, helpless within itself, demand such a record, and are ample justification for compulsory birth registration. The Registration Act of 1851, of Pennsylvania, even though not

enforced, still adequately and excellently gave reasons in its preamble for the passage of efficient registration laws, as follows:

"Whereas, From the death of witnesses and from other causes it has often been found difficult to prove the marriage, birth or death of persons, whereby the rights of many have been sacrificed and great wrongs have been done; and

"Whereas, Important truths, deeply affecting the physical welfare of mankind, are to be drawn from the number of marriages, births or deaths that during a term of years may be contracted, or may occur within the limits of this extensive commonwealth; therefore, —," etc.

It is not proposed to touch upon the practical value of complete, accurate and uniform records of births to statisticians and students of sociological problems, but to comment merely upon the practical value of same in the ordinary relations of life. The legal benefits of birth registration are dual in character. First, in perpetuating evidence safeguarding the civil rights of individuals. The birth certificate definitely fixing place, date of birth, parentage, etc. Second, in assembling information which every state must possess in order to legislate wisely for the needs of its future citizens. If a state or nation desires to anticipate the needs of succeeding generations, and to legislate with wisdom as to their requirements, it must know how great its future population is to be, and from what sources it is to be recruited. This knowledge necessary to direct the lines of progress and to weld the state to society can only be gained through effective registration laws. Such laws have been held to be constitutional, and the methods of their enforcement well defined.

Our nation is duty bound to protect the rights of person or property of its citizens upon the high seas or abroad, even to the extent of force of arms. It should in such extremity, however, have the best and most positive evidence of the birth-place, date of birth and parentage of such subject to insure it that as a citizen such person should be protected. In the absence of birth registration, there is better legal evidence of the citizenship of naturalized foreign born than of our own native people.

Our Government is said to be a government of the people, by the people and for the people. It records the vital events of its political history, and they are taught to its coming citizens through the medium of its public schools, with the hope that the achievements and examples of the patriots who have emblazoned the horizon of political liberty with a succession

of events establishing and perpetuating a great nation will be emulated. Is it not equally fitting and important that the vital events in the lives of those who are its people should be properly recorded? No government can fulfill its obligation of social service to its people which ignores the records of their existence. Its very existence depends upon the allegiance of its citizens. Its humblest citizen should at least in return be entitled to have recorded by his sovereign power his entrance and his exit from its political life. His very birth carries with it the obligation of certain duties owing to his government, even to the extent of bearing arms and giving up his life in order that his government might continue to exist. To his government, as well as to himself, his birth is equally vital. How eminently important is it, therefore, that each state record the vital events in the lives of its citizens, their births, as well as their deaths, to the end that these United States may demonstrate to the fullest degree that the greatest function of all government is the recognition of personal rights, as well as personal liberty.

**THE SIZE OF FAMILIES IN RELATION TO NATIONALITY,
OCCUPATION AND ECONOMIC CONDITIONS, AND THE
RELATIVE OCCURRENCE OF STILLBIRTHS IN
THE VARIOUS CLASSES OF POPULATION**

**By WILLIAM H. DAVIS, M. D., Vital Statistician, Boston Health
Department**

As pointed out many years ago by the celebrated statistician, Dr. Farr, the best way to determine the size of families or the fecundity of various classes of population would be to actually follow out the number of children resulting from a large number of marriages. Such a procedure would be comparatively easy in Budapest, where the birth returns give, among other things, the ages of parents and the previous births in the same family, or in New South Wales, where the death certificates of each female gives her age at marriage and the number of children she has borne. But elsewhere only approximate statistics of fecundity are readily obtainable. Such estimates may be obtained by dividing the number of births by the number of marriages.

¹ "If the annual marriages in a given community did not increase or decrease in number through a series of years, the division of the annual births by the annual marriages of the same years would express the fecundity; but when the marriages are rapidly increasing, an approximation to the fecundity can only be obtained by dividing the births by the marriages of some earlier year. The year to be selected is determined by the interval between the mean age at marriage and the mean age of the mothers when their children are born."

In Sweden this interval has been found to be 5.9 years, and in default of sufficient data in other countries it has been customary to use an interval of about six years. Sometimes the births of any given year have been divided by the annual average of the marriages of the fifth, sixth and seventh years before. Sometimes the births of one census year have been divided by the marriages of the census year five years before. And some writers have divided the annual births by the marriages of the same year, or by the year previous.

These variations should be kept in mind when comparing fecundity statistics.

¹ Vital Statistics. Newsholme, p. 69.

The following table shows the comparative fecundity of various countries: ²

TABLE I
CHILDREN TO A MARRIAGE IN VARIOUS COUNTRIES

Russia in Europe (1888).....	5.70
Ireland	5.46
Finland (1887).....	5.03
Tasmania	4.96
New Zealand.....	4.93
Russian Poland (1888).....	4.89
Queensland	4.81
New South Wales.....	4.76
South Australia.....	4.73
Italy	4.56
Western Australia.....	4.49
Scotland	4.43
Holland	4.34
Victoria	4.23
Belgium	4.21
England	4.16
Sweden	4.01
Denmark	3.55
Japan (1888-91).....	3.50
France	2.98

Owing to the poor registration of births in the United States, no general estimates of fecundity can be made. In certain districts, however, birth registration is sufficiently complete to warrant such estimates.

²Victorian Year Book. 1895-8, p. 662.

³ Table II gives the marriages in Boston from 1901 to 1910 by birthplaces of brides.

TABLE II
BOSTON MARRIAGES BY NATIVITY OF BRIDES

YEAR	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	Total for 11 Years
Total.....	6049	6310	6172	6640	6736	6775	7374	7761	6993	7176	7599	75585
U. S.....	2930	3006	2992	3092	3215	3200	3427	3556	3230	3280	3351	35479
Ireland.....	826	911	821	871	847	785	810	871	720	760	706	8928
Germany.....	92	94	91	77	71	66	75	63	70	71	61	831
Eng., Scot. & Wales.....	239	238	183	237	230	186	288	282	221	268	313	2685
Canada.....	966	1002	909	953	901	884	936	895	858	834	897	10035
Scandinavia.....	165	194	193	206	212	221	240	246	181	243	236	2337
Italy.....	358	347	427	538	553	606	660	799	637	632	700	6257
France.....	19	9	5	14	14	12	19	16	13	7	13	141
Russia & Poland.....	328	397	402	517	536	640	728	816	836	888	902	6990
Other Coun- tries.....	126	112	149	135	157	171	186	213	225	193	220	1887
Unknown.....	.....	.....	.....	.....	.....	4	5	4	2	.....	.....	15

Table III gives the births in Boston from 1901 to 1910 by birthplaces of mothers.

From these two tables various estimates of the fecundity of different divisions of the population have been made, as given in table IV.

Dr. Cressy L. Wilbur published similar figures for the State of Michigan for the years 1894, 1895 and 1896. See table V.

Dr. Wilbur estimated that fecundity rates of immigrants in Michigan required a reduction of 20 per cent because of marriages prior to arrival in this country.

Minor corrections are also needed for differences in the number of divorces, in the age distribution, in the number of illegitimate children, etc.

But after due allowance has been made for all errors, the fact still stands out clearly that the fecundity of the foreign immigrants is much greater than the fecundity of the native Americans. A fact for grave concern! For it is common knowledge that it was not always so. In olden times large families were the rule; today they are the exception.

* Data Relating to Boston Marriages and Births are from Reports of the Registry Department.

TABLE III
BOSTON BIRTHS BY NATIVITY OF MOTHERS

YEAR	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	Totals for 11 years
Total.....	16351	15551	15512	15701	15769	15681	17102	16280	16347	17599	17670	183563
United States.....	5692	5483	5442	5578	5468	5612	6205	6446	6554	6244	6226	64950
Ireland.....	3938	3591	3553	3457	3293	3171	3198	3209	3085	2860	2816	36171
Germany.....	394	314	294	265	263	223	243	225	215	179	161	2776
Eng., Scot. & Wales.....	635	644	556	534	529	524	544	588	545	546	541	6086
Canada.....	2226	2119	2018	1897	1905	1847	1952	2017	1881	1704	1747	21313
Scandinavia.....	410	332	318	336	336	357	398	418	396	380	321	4001
Italy.....	1251	1411	1521	1730	1880	1801	2053	2423	2538	2486	2705	21799
France.....	19	28	17	20	17	17	18	17	23	23	19	218
Russia & Poland..	1318	1337	1395	1497	1679	1689	1985	2374	2492	2574	2479	20769
Other Countries..	437	371	382	365	367	397	471	518	590	622	628	6148
Unknown.....	31	21	16	23	32	43	35	45	28	31	27	332

TABLE IV
SIZE OF FAMILIES IN BOSTON BY NATIVITY OF BRIDES

	Births divided by brides of same year			Births 1901-1910 divided by brides 1900-1909	Births 1908-1911 divided by brides 1900-1904
	1900	1910	Eleven years 1900-1910		
Total.....	2.7	2.3	2.4	2.5	2.8
United States	1.9	1.8	1.8	1.9	2.1
Ireland.....	4.8	4.0	4.1	3.9	3.5
Germany.....	4.3	2.6	3.3	3.1	2.4
England, Scot. & Wales ...	2.7	1.7	2.3	2.3	2.5
Canada.....	2.3	1.9	2.1	2.1	2.0
Scandinavia.....	2.5	1.4	1.7	1.7	2.0
Italy	3.5	3.9	3.5	3.7	5.5
France	1.0	1.5	1.5	1.6	1.6
Russia & Poland.....	4.0	2.7	3.0	3.2	5.4
Other Countries.....	3.5	2.9	2.7	2.8	4.2

TABLE V
CHILDREN PER MARRIAGE IN MICHIGAN ⁴
(Births divided by brides of same year)

Birthplaces of Brides and Mothers	Children per marriage 1896	Children per marriage 1898	Children per marriage 1894
United States.....	1.8	1.8	1.8
Canada	3.1	3.2	3.2
England & Wales.....	3.6	3.3	3.1
Scotland.....	2.6	3.9	3.9
Ireland	4.9	4.3	3.6
Germany	5.1	5.3	5.0
Austria	3.4	3.9	5.4
Holland.	4.9	4.2	4.5
Norway.....	4.7	4.8	3.9
Sweden.....	4.9	5.0	3.9
Denmark.....	4.4	5.3	3.7
Russia-Finland.....	3.8	4.2	3.3
Poland.....	14.0	16.0	19.4
Italy.....	6.4	9.6	8.5
Other Countries.....	2.5	2.4	2.4

⁴Michigan Registration. Report 1896, p. 32.

⁵ Referring to the causes of declining fecundity, Dr. Billings said:

"The most important factor in the change is the deliberate and voluntary avoidance or prevention of child bearing on the part of a steadily increasing number of married people who not only prefer to have but few children, but who know how to obtain their wish."

Table VI clearly indicates that in other countries also those who ought to have large families shirk their responsibilities.

TABLE VI

⁶ BIRTHS PER 1,000 WOMEN—15-50 YEARS OF AGE

	Paris	Berlin	Vienna	London
Very poor quarters.....	108	157	200	147
Poor quarters.....	95	129	164	140
Comfortable quarters.....	72	114	155	107
Very comfortable quarters.....	65	96	153	107
Rich quarters.....	53	63	107	87
Very rich quarters.....	34	47	71	63
Total.....	80	102	153	109

In Paris, in the very poor quarters, there were 108 children per 1,000 women 15-50 years of age, against 34 in the very rich quarters. Similar figures appear also for Berlin, Vienna and London.

To touch briefly upon the relative occurrence of stillbirths: If stillbirths include all interrupted pregnancies, even rough estimates are hardly possible, for only the stillborns who have reached an advanced period of uterine gestation are, as a rule, recorded.

The term stillbirths will, therefore, be taken to mean recorded stillbirths.

Professor Bailey says: "There is no doubt that the conditions under which people live have an effect upon this phenomenon. With insufficient light and bad air, the body becomes weakened, so that healthy children are not to be expected. Where the women work for long hours at hard labor or in a cramped position, the danger is increased. Thus among the agricultural classes in Europe in the summer, when the hours of labor in the fields are the longest, the number of stillbirths is the greatest.

⁵ Dr. Billings quoted in Michigan Report, 1894, p. 125.

⁶ Bertillon's Table—Bailey's Modern Social Conditions, p. 110.

Apparently the number differs widely in different countries, as is shown by the following table:

TABLE VII
¹STILLBIRTHS PER 100 TOTAL BIRTHS 1887-1891.

Holland	4.76	In Boston in the last twenty years the annual number of stillbirths per 100 living births has varied between 3.31 and 4.47.
France	4.60	
Belgium	4.56	
Switzerland	3.80	
Italy	3.67	
Germany	3.53	There were 4.15 in 1892 and 3.98 in 1911; 1894 was high year, with 4.47, and 1899 low year, with 3.31.
Austria	2.85	
Norway	2.75	
Denmark	2.72	
Sweden	2.62	
Hungary	2.00	

There are, however, many chances of error in such comparisons. The meaning of the word stillbirth is very different in different countries. In France for example, a child may live three days, and still be declared a stillborn. In Norway no stillborn under four months' gestation is recorded. In Sweden no stillborn under six months' gestation is recorded, while in Denmark it is not necessary to report stillbirths under seven months, and in Austria only stillbirths at term are used.

A comparison of stillbirths among the various nationalities of some one city would, however be free from such errors.

In table VIII are given the stillbirths in Boston by principal birthplaces of mothers for ten years, and the rates per 100 living births.

TABLE VIII
 BOSTON STILLBIRTHS BY PRINCIPAL BIRTHPLACES OF MOTHERS

Nativities of Mothers	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	Total 1901-1910	Rates per 100 living births 1901-1910
Total.....	648	675	633	661	664	661	730	637	714	675	6698	4.01
U. S.....	232	263	194	198	270	258	263	238	271	250	2437	4.11
Ireland...	135	147	140	148	114	116	133	106	111	113	1263	3.92
Canada...	73	70	64	74	77	71	59	62	68	76	694	3.64
Italy.....	50	44	49	115	60	75	89	79	90	92	743	3.62
Russia & Poland..	56	52	77	49	62	69	92	85	92	76	710	3.65

¹ Bailey's Modern Social Conditions, p. 129.

PER 100 LIVING BIRTHS:

Mothers born in the United States had 4.11 stillbirths
Mothers born in Ireland had 3.92 stillbirths
Mothers born in Russia and Poland had 3.65 stillbirths
Mothers born in Canada had 3.64 stillbirths
Mothers born in Italy had 3.62 stillbirths

These figures are so nearly alike that the differences may well be due to accidental causes.

Where there is the best medical care the relative number of stillbirths must be smaller; where syphilis is more prevalent the number of stillbirths must be greater. Where illegitimate children are more common stillbirths must be greater. But the joint result of all the factors among the principal nationalities in Boston has been to produce about the same number per 100 living births. The Italians had the lowest ten-year rate (3.62), but it should be noted that in 1904 their rate was over 6.

In these same ten years, according to the hospital records, there were 25,643 living births reported by the Boston Lying-In Hospital, about one-third of which were hospital born, and two-thirds home born. In the same period this hospital reported 997 stillbirths, which gives a rate of 3.89 per 100 living births, indicating again that the Boston rate per 100 living births is everywhere about 4. Moreover, the fact that the hospital rate so nearly coincides with the city rate indicates that stillbirths of advanced pregnancy are well reported throughout the city.

To summarize briefly: Children are not in fashion, divorces are the latest fad, and the paucity of children among the well-to-do is a disgrace. But there are signs of a coming change. The cry has gone forth to prevent infant mortality, the existence of this society shows the intense interest felt, and it is but a step further to the time when it will be considered a disgrace to avoid motherhood and an honor to have a large family.

DISCUSSION

Dr. Bertillon: Dr. Davis asks as to stillbirths, whether poor people have a large proportion of stillbirths? That is true, and it is easily explained. The poor woman of the average laboring class till the end of her period is naturally in bad condition. But in Paris and in other cities in the rich quarters the proportion of stillbirths is higher than in the poor quarters. The rich woman doing absolutely nothing is in a worse condition than the poor woman working all the

time. That is confirmed by statistics of children and babies dying from atrophy. In general, the mortality is greater in poor quarters than in rich, but diarrhoea is more terrible in poor than in rich quarters. The rich lady has received a bad education. She has not had sufficient exercise in her youth. These statistics were given by my friend, Dr. Verrijn Stuart, of Holland.

Dr. Helen C. Putnam, Providence: A few years ago Dr. Theodate Smith, of Clark University, studied several thousand New England families, going back in some cases nearly 300 years. Her facts raise several very interesting questions.

It was found that forty per cent of the mothers did not live to bring up their children. In a large number of these families with so many children there were two, three, four and even five mothers. If the size of families were reckoned per wife instead of per father, there would not be so much difference between families then and now. This raises the question whether it is best for the race to have such families that the children must be brought up by others instead of their mothers.

It was also found that many large families tended to extinction in four or five generations. The child mortality was frightful as well as the mothers'. This raises the question whether it is any advantage to the race to lessen the vitality of mothers and so lessen that of the children for the sake of numbers. Small incomes, hard housework and the effect on health of excessive child-bearing are reflected in these figures. It was found that the smaller families were more often the ones surviving to the present time with vigorous descendants. A report of this study can be had by addressing Dr. Smith.

The Chairman: That recalls the statement of Professor Irving Fisher that the mackerel lays over fifty thousand eggs but only two become productive. It also recalls Aesop's Fable where the fox taunts the lion with the smallness of his family, and the lion says, "Yes, but every child is a lion." We may bear strictly in mind as to whether our children are to be in the mackerel or the lion class.

Professor Abby Marlatt, of Wisconsin: As a simple matter of justice, I wish to make a plea in regard to the responsibility for productiveness or nonproductiveness. Should we not charge man with part of the responsibility in race suicide, and not throw it all upon the woman? I have noticed for years that women of the healthier and the better educated class who are without children, mourn that fact. They are not always responsible, I am convinced of that. That some may be responsible, is true. But a sweeping statement that the woman bred in wealth is responsible for the smallness of her family we have no right to make.

Dr. Wilbur: In Michigan fifteen or twenty years ago the native-born fertility or fecundity of marriage was not sufficient to maintain the native-born population; it was considerably less than the foreign-born, and in mixed marriages it descends at once to the American scale. A very interesting investigation was made by the Commission on Immigration. The results compiled by Dr. Hill, of the Census, show for a few localities the fecundity of the native-born, those of foreign birth, and the first generation of their descendants. I think the localities include Minneapolis, Cleveland and Providence. It affords a very interesting study, and perhaps the only reliable figures we have on the subject.

EDUCATIONAL PREVENTION OF INFANT MORTALITY:
SECTION ON CONTINUATION SCHOOLS
(SECOND CONFERENCE)

Thursday, October 3, 3.30 P. M.

Topic: Education of youths and men, through continuation schools and classes including those primarily intended to increase wage earning capacity, in responsibilities and duties of home makers other than supplying money; e. g., elements of house planning and sanitation, of eugenics, first aid, contagion and disinfection, repairing furnishings and clothing; of pure food and dietary principles, home gardening and beautifying.

CHAIRMAN

DR. HELEN C. PUTNAM, Chairman of the Committee of the American Academy of Medicine to Investigate the Teaching of Hygiene, Providence

SECRETARY

PROF. ABBY L. MARLATT, Department of Home Economics,
University of Wisconsin

CHAIRMAN'S INTRODUCTION:

This continues the topic of last year that on every side met the problem of unfit fathers: "Since the great majority of children leave school before sixteen years of age, and there is a considerable interval before marriage, should school boards create Continuation Schools of Home Making where girls (women) with grammar school education (more or less) can receive, even several years after leaving school, free instruction in housewifery, care of children and related matters, thus bringing instruction near the time when it is needed for use."

For the purpose of having as constructive discussion as possible with no time wasted on "men of straw," the program of the annual meeting enumerated after the topic these following seven points on which agreement is assured without debate.

1. Census reports and other social research show that by a very generous margin we lead the thirty-one civilized countries in national wealth, but according to our most favorable estimate rank nearly one-third down the list in rate of infant mortality—the most sensitive test of civilization.
2. The elementary knowledge instanced in the topic is needed for proper conservation of childhood.
3. Men are sometimes unoccupied outside the home, and supplementary wisdom and help are often needed in the endless round of home duties and responsibilities.
4. Legal regulation of men's hours of labor leaves time free to be otherwise used.
5. Men as well as women need the humanizing influences associated with intelligent home making and care of children.
6. Men as voters, officials, employers have great responsibilities determining the welfare of homes.
7. Such instruction should only be undertaken wisely, i. e., attractively and so far as it goes correctly, and may include co-education when fitting.

The constructive discussion hoped for was not altogether realized, but parts of the following pages afford an interesting study of the prevalence of educational notions that are outworn, if not outgrown. One such notion is that home making is synonymous with cooking, sewing and cleaning—this we find dominates school curricula, and that cooking, sewing and cleaning are synonymous with "women's work"—in face of the fact that within a hundred years most of the labor preceding the consumption of foods and drinks has been taken over by men, as has been most of the labor preceding the use of articles made of fabrics, much of the cleaning, and even a large part of midwifery; also care of infants and children, since men make and enforce the laws controlling the environment of children outside the home (including the schools), as well as largely determining details of health, comfort, intelligence and morals within the home. As a result of all this, women are standing with "back against the wall" demanding that education shall fit the average man for these responsibilities, in order to put a stop to the monstrous wrongs to infancy and childhood that prevail.

Yesterday's newspapers reported a schoolboy shut up for punishment by a janitor and truant officer in a shower-bath room, with the steam coils heated in this warm weather, forgotten at the close of school, and later found unconscious by a policeman, who summoned a physician. This was not so much the fault of the janitor and truant officer as of the authorities who put power over children in the hands of employes ignorant of physiology, and who will possibly retain them in office after they have demonstrated their incapacity by not quite killing—someone's child. Such continuance of the unfit in office results in other abuse of children on a larger scale similar to what I saw this morning—pupils crowded three on a seat in rooms whose air was foul within ten minutes after the class began, although, the weather being warm, the windows were open. The health of these potential fathers and mothers helps determine infant mortality rates of the future.

This ignorance and indifference to the welfare of children are not in the least peculiar to one city. They are common to practically all. They account, in part, for the increase of tuberculosis through the school years in all but open-air schools, for school fatigue and "school diseases," for unhygienic practices and unsanitary conditions throughout the country, because hygienic habits and sanitary standards are not learned by being lived up to in the schools. They account in large part for the infant mortality rate. It is very literally true that it is a measure of the health, intelligence and right living of fathers and mothers; the standards of morals and sanitation of communities and governments; the efficiency of physicians, health officers and educators.

Another curious old notion is that boys and men will not take kindly to "cooking and cleaning"—these being the details of home making around which the discussion chiefly ranged. Dr. Langworthy's report of hundreds of thousands of boys and men who elect to take such instruction and do such work is sufficient reply, and it can be supplemented by as many more who elect it under other conditions. It rests with public school officials to convince boys—potential home makers—as effectively, for example, as have the Department of Agriculture and War and Navy Departments, that their interests, duties and responsibilities demand as imperatively as they demand the three Rs—not exactly instruction in "cooking, sewing and cleaning," but the elementary information and skill indicated in the topic of this session. That special methods for boys must be devised is a notion resulting probably from

failure to make "short cuts" to wisdom, or poor instruction popular. I have seen in England classes of grammar school boys and older youths and girls fascinated with house planning and sanitation under a competent instructor. In this country here and there we find boys with girls in cooking and sewing classes, quite often in classes in biologic science where eugenics, contagion and disinfection are properly taught, and invariably in garden classes, the last two including those of continuation school ages, and all being elective. One effective method and capable instructor suits equally boys and girls. They need separation only for single talks.

Wealth, or even a livelihood, is not more important than the development of good physique and character in potential parents, as education, by its sins of omission, lets us infer, and the increase of wage-earning capacity does not carry with it wisdom for wise spending. Billions are poured out annually, largely from shallow purses, on objects destructive of infant life; alcoholic and other drug habits, prostitution and gambling; poor buildings and furnishings; evil breeding reading and entertainment; inefficient officials and ineffective institutions. I hazard the guess that we have enough money, but much of it is unwisely spent and unjustly distributed. Education for home making includes education to support a family. Education to increase wage-earning capacity has not included, as we claim it should, education for wise spending and decent parenthood. For marriage a certificate of ability to care for a family is as essential as a health certificate.

That this instruction must be offered in fashions attracting pupils goes without saying. Our object is to urge that effective methods, whatever they may be, be adopted in every continuation school and class while they are in the formative stage, and are not yet fossilized as school work so often becomes. There is no kind of vocational instruction that has not its hygienic or sanitary aspect. The pedagogue would ordinarily present that aspect, if he presented it at all, off in an hour by itself, or in a class by itself, and it would be once more proved, as it usually has been, that the pupils are bored. Health of body which is physical morality, like spiritual morality, can only be effectively taught in connection with daily labor and living. The health side of vocational instruction belongs in every session, in connection with many details, backed up by practice, and emphasized on repeated occasions by reference to family and heredity. Such instruction should be given as a matter of course, and should be impersonal. The more impersonal the stronger it can be put, and the stronger

will be its influence. Class instructors who attempt to make topics personal with which strong instincts are concerned take serious risks, especially if moral questions are involved. Public personalities, even when collective, usually irritate under these circumstances. Say "they" or "we," but almost never "you."

Sometimes the illustrated lecture, followed by discussion from the floor, may be useful; sometimes holiday excursions to study sanitary, biologic, sociologic details of institutions, communities or inhabitants; vacation camps, or outing fortnights in country cottages, as in some other countries; "vacant lot" and other gardening possibilities under supervisors with socio-biologic viewpoints; utilizing in every case the immediate environment and interests and labors as texts for instruction. Health instruction should be neither labeled nor formal for average and below average intelligence and common purposes. It is as absurd as to attempt to regulate breathing by drawing in so much nitrogen, so much oxygen, carbon dioxid and other gases. It will be kept a part of live interests in the model school and model "pedagogic form" we are glimpsing.

In eugenics every potential parent should be definitely taught at the least that (1) drunkards, sexually depraved men and women, insane, feeble-minded and habitual criminals usually have children with defective nervous systems, and usually breed their kind. (2) Life is—literally and biologically—a trust from an infinite ancestry, to be guarded and bettered in one's turn, and passed along to infinite generations; even if childless this law cannot be evaded, for one's influence helps make the world and its children.

EDUCATION OF BOYS AND MEN FOR HOME-MAKING IN PART-TIME AND CONTINUATION SCHOOLS

By C. A. PROSSER, Secretary, National Society for the Promotion of Industrial Education, Boston

I.

It must be admitted without debate that supplementary wisdom and help, such as the male of the household must well give, are often wanted in the endless round of home tasks and responsibilities; that men as well as women need the humanizing influences associated with intelligent home-making and the care of children; that as legal regulations reduce the hours of labor for the wage-earner, much of his leisure time and attention needs to be directed towards the interests and the responsibilities of his own fireside; that with our growing sense of the importance of the home as the rock of our social salvation, our age must in some way undertake the difficult task of transforming men from more or less irresponsible boarders into responsible and helpful sons and husbands and fathers.

Desirable as such a consummation would be, it is all too plain that much of it will only come through social evolution. Social agencies of every kind which make for human uplift can and are hastening its coming. Organizations like this Association, which stand for the purity of the home and the conservation of childhood cannot fail to both directly and indirectly impress men with the sanctity and the great responsibility of husbandhood and fatherhood.

The public schools undoubtedly have a great opportunity and a correspondingly great duty to prepare girls and women for their chief vocation as wife, mother and home-maker; their responsibility for the proper training of both sexes for successful service as bread-winners for the home is equally great. How far the schools can and should in part-time and continuation classes by conscious direct training educate boys and men in home problems and duties is the debatable question, which, as I understand it, is at issue.

II.

That mothers must occasionally go out as bread-winners while fathers remain at home to attend to the affairs of the household is true. Unnumbered thousands of girls and

women are today employed in all sorts of work as wage-earners outside the home. Much of the work which women formerly did as a means of livelihood in the household has been taken over by the shop and the factory, to which they must now go for employment. Female wage-earners represent either the surplus labor of the household or neglected homes from which the mother or the daughter has been driven forth to labor, either as the sole bread-winner or to help raise the pittance that the father makes to a living wage. Women in industry have supplemented, not supplanted, the men in industry. Comparatively speaking, the arrangement where the man is the home-keeper is so occasional and exceptional that a program of education which would propose to train all men in home duties, lest one of them might as the exceptional case be required to take the part usually performed by the other sex, must rightly be rejected, because it is socially wasteful to use time and money in fitting people for occupations which they never follow. The suggestion that boys and men be trained in the activities and problems of the household must rest upon some better ground than the plea that occasionally one of them may, for any one of a variety of reasons, be required to discharge the duties which have traditionally been met by girls and women.

III.

The time during leisure hours which the male worker can give to practical instruction can best be devoted to the subjects which will make him more efficient in his chosen occupation. Greater efficiency will bring the larger wage with which the home of the wage-earner can be made more sanitary, more comfortable, more attractive, more successful as a place for the conservation of childhood. To use this time in an attempt to fit him for the traditional employments of the home usually discharged by the female is both to fail to meet his more important needs as a bread-winner, and to prepare him for a service which he would seldom, if ever, render.

IV.

It is true that as a part of a general preparation for life every boy ought to have an elementary knowledge and skill in the rudiments of the household arts, so as to be able to take care of himself for a time in an emergency. The few attempts which the elementary schools have made to give him this have, to say the least, not been conspicuously successful. Everywhere this has been attempted, boys have rebelled as

far as they were able against the training, and have met it with an indifference and secret opposition fatal to its success. Summer camps have succeeded far better than school or home in teaching the boy to do simple cooking, mending and cleaning on a camp basis, because they have taken advantage of his interest and his needs. There are so many other practical subjects in which the boys are interested which will be of lasting economic and social value, and which the schools can, if they will, teach properly, that the task of introducing them to the traditional household duties should be left to the home, where it may be given under stress of necessity, or as an incident in the life of the family.

V.

What we do need, at least as a distant goal for our hopes and our efforts is to bring men in some way to *supplement* rather than *supplant* the woman in the proper discharge of her growing home responsibilities. Girls and women must be trained as they never have been trained for the several duties of wife and mother and home-maker. But there has been entirely too much of a tendency in all our discussion to place the entire burden of the family welfare upon the shoulders of the women. Marriage is a joint contract between a pair which has for its sole social purpose and justification the proper rearing of children. The male does not discharge his obligation by the comparatively simple art of providing the home nest. This twentieth century noonday has brought us a vision of the needs and possibilities of intelligent consecrated home-making, which, if we are to realize it, must command the anxious mutual effort, the devoted team-play of fatherhood and motherhood.

The high conception of the responsibilities of fatherhood rise far above the question not only of whether the man of the home should be able to take the place of the woman as a home-maker, but even of whether he should be able to discharge properly in an emergency the traditional household duties which have always been the woman's task. Far more important and vital than these are the fitness of his own body, the purity of his own life, his devotion to the family circle which he has brought into being, his interest in the welfare of his own roof-tree, his intelligent knowledge of the problems and the possibilities of his own household, his willingness and his ability to follow as an earnest and attractive avocation the work of a supplementary and complementary home-maker. The large social value of such fatherhood would

justify any attempt, no matter how costly, on the part of society to bring it about. How to accomplish it is as difficult to answer as all the other problems which involve so much of human nature and the play of man's free spirit.

VI.

Following the growing tendency of our times to appeal to the schools as the weapon of our social deliverance, it has been proposed to use the definite, direct, serious instruction of the classroom to prepare boys and men for the responsibilities in the home. It is urged by some that in part-time and continuation schools and classes designed to meet the wage-workers, "adolescent boys and young men should be educated in such details of home tasks and responsibilities as the elements of house-planning and sanitation, eugenics, first aid to the injured, contagion and disinfection, repairing furnishings and clothing, pure food and dietary principles, home gardening and beautifying, some of these being vital factors in preventing infant mortality." All undoubtedly would be a valuable part of the equipment of the man as a supplementary home-maker. Whether or not such classes would be possible and profitable is the debatable issue.

VII.

Classes claiming a part of the leisure time of the wage-earner for direct definite training fitting for the home-making would not, at the present time at least, be advisable, nor if they were established, could they be carried on successfully. There are a number of considerations which support this belief:

1. Since this Association has already committed itself strongly to the proposal that the public schools of the country should undertake on a large scale the great task of training girls and women for home-making, a problem towards whose solution we have as yet scarcely made any beginnings, it would be unwise to scatter interest and effort and to weaken the position already taken by any very serious consideration of the doubtful and difficult question of training boys and men expressly for home duties.
2. The public schools of the country are just entering in an experimental way upon the task of establishing a system of vocational education preparing boys and men to meet the demands of industry, and girls

and women for their most important work of intelligent home-making and the care of children. Even admitting for the sake of argument that it could be done, it is unwise to confuse the issue by proposing that men shall be trained for home duties until the schools have been able to accomplish something in the large and difficult undertaking upon which they have already entered. The task which confronts them is stupendous, both from the standpoint of the number to be reached and the expenditure to be met, and from the standpoint of the problems to be solved and the difficulties to overcome. Not 25,000 of the 10,000,000 wage-earners of the United States have any adequate opportunity to secure preparation for their life work. Not one girl out of a hundred in elementary school or high school, and not one girl in a thousand employed as a bread-winner can get, either in her own home or out of it, proper training for her largest and longest vocation as the keeper of the home and the mother of children. In the face of this great need, and the deplorable neglect of the rights and the interests of those who toil in field and shop and home, suggestions, however well intended or ingenious, as to other things the schools could do, can well afford to wait.

3. Every experience of those who have dealt with the after training in part-time and continuation schools of male wage-workers goes to show that they would not attend classes having for their direct purpose the express and serious instruction of boys and men in the affairs and problems of the home. It is often hard to get them, after the toil of the day, to take the courses which are designed to make them more successful wage-earners in their own daily employment. Adolescent boys under seventeen years of age should not be required or permitted to attend evening school after the exhausting employment of the day. Physicians and social workers are agreed that the attendance does more harm than good. If reached at all, boys between fourteen and seventeen employed during the day must be taught in part-time classes claiming a portion of the working week for definite instruction of some kind. The small amount of part-time schooling carried on after six years of agitation in this country, even in those trades and occupations

for which the school can give helpful preparation, indicates how impossible it would be to secure the consent of the employer to the proposal that he should organize his establishment so as to give his adolescent workers a chance to be trained for their future responsibilities as fathers. Even if he were willing the adolescent would not consent to take such training. He is interested in the problems of boy life in all the wonderful new world of fact and fancy which his heightened and quickened senses face. He is not at all concerned with the far-off future duties and responsibilities of family life, which, if not repugnant, are at least very unattractive to him. If compelled to take the instruction, he would steel himself against it. You could lead the horse to water, but you could not make him drink.

Nor would the attempt to interest the adult breadwinner in the definite instruction relating to home-making be any more successful. Many toilers are too tired for any classroom work at night. Only the comparatively few who are ambitious ask for evening classes. All these want short, brief, direct courses that meet their immediate needs and deficiencies, which will give their next step forward in their callings, or send them back to the shop equipped with the additional knowledge and skill which they can turn into better wages. They think, and rightly so, that the best use which they could make of their evening hours, if given to classroom work, would be to devote them to the subjects which will increase the resources and raise the standard of living of those who are dependent upon them. Few, if any, men, now at least, would ever take direct and express training for home-making. Those who did would not be the strong, virile men who would profit by it most. Traditionally, home-making has been the woman's part. Class consciousness among males would make such training if not impossible, very unpopular.

4. Vocational education for the farm, the home and the shop is necessary to our future prosperity as a people. The battles of the future between the nations will be fought, not with Dreadnoughts, but with the products of our farms and our shops. That nation will succeed best, with all that its success will mean to the welfare of its homes and its people, which is able to

put the greatest amount of brains and skill into the things it sells in the markets of the world. The moral and the social welfare of our workers is at stake. We have undertaken the task of training our people to work, as well as to live well, almost too late. The task which now confronts us is vital.

It will require all the time which the worker can give, or the class can employ, to fit our boys and men for the economic efficiency which it is their right to possess, and the duty of the state to bestow. Until the duty has been met, in some measure at least, we can well afford to leave the part-time and continuation school for men undisturbed to grapple with the task, seeking in other, less direct and probably after all more successful, ways of making the sons of men better fathers of the oncoming generations.

5. In view of all these considerations, it would be far better at the present time, instead of any extensive discussion of the question of widespread attempt to establish definite classes in phases of home-making for the sterner sex, that in some way a carefully devised trial be made under the conditions which would make it a fair test of just what could be accomplished by such classes. One experiment of this character properly carried out and interpreted would be worth reams of discussion and oceans of controversy. After all, may it not be that we are making in the direction of better homes, better fathers, as well as better mothers, faster than we know, and that the making of boys and men into interested and helpful members of their own households is being accomplished through other and less direct agencies more extensively and probably more successfully than by the direct and formal classroom instruction of males in home duties. The spread of general intelligence is making men keener to a sense of their responsibilities as fathers and home-makers. Every agency, every factor which is making for the betterment of the home and the protection and conservation of childhood is gradually but surely bettering the attitude of son and husband and father towards the part which each is to play in the family relation. Science and invention are every day laying their contributions toward the beauty and the comfort of the home at the feet of the parent, tempting and inducing him

to use them for the happiness of his own family circle. Newspapers and periodicals of all kinds teem with valuable information upon every phase of home life and every problem and difficulty it faces. There never was a time in the history of the world when the home was being helped in so many ways, and when the home, conscious of the shortcomings and impressed with the importance of its own task in the rearing of children, was quite so ready to take and use information and aid from every helpful source.

The public school is to play an increasingly large and helpful part in the making of men, as well as women, into better home-makers. It will come, so far as men are concerned, at the present time, not through formal classroom instruction in home duties for males only, but through the social and recreation work which the schools are yet to develop extensively, and through which, by entertainment and talk and lectures and moving picture, carefully and tactfully presented among other interesting and helpful subjects that make for good citizenship, men, usually along with women, will have set before them the information and the illustration which will lead them into a better discharge of the duties and responsibilities of their husbandhood and parenthood.

HOME ECONOMICS WORK IN THE UNITED STATES FOR MEN AND BOYS

By CHARLES FORD LANGWORTHY, Ph. D., Department of Agriculture, Washington, D. C.

We are accustomed to speak of courses of instruction as women's subjects or men's subjects, according to the interest they arouse, and usually think of home economics as belonging to the former group. In most cases analysis shows that the subject-matter taught has to do with topics common to the interests of both men and women, plus a larger or a smaller portion particularly interesting to each. To cite an illustration, the subject of physics is without doubt more interesting to men than to women students, yet a considerable part of its subject-matter has to do with phenomena as important to one as to the other. Though a great deal which is included pertains particularly to men's occupations and activities, there is a considerable portion which directly pertains to women's interests, a matter which in this, as in other subjects is not so often emphasized as it should be in arranging courses.

What has been said is equally true of home economics. Though at first thought it might appear that the subject is concerned exclusively with women's activities, it should be apparent to all that a large proportion of the subject-matter which would be included in the ideal course is of equal interest to both men and women—for instance, ventilation, heating and lighting, the selection of clothing, the hygiene of right living, and a knowledge of the relative value and use of foods—while a portion, its extent not yet formulated, has to do particularly with men's activities as related to the general question of food, clothing and shelter. The ideal course of instruction will recognize these facts, and be arranged accordingly.

These things being so, it is natural that we should find, as is the case, that instruction in what may be called home economics is given to men in a variety of ways and under a variety of names, though very seldom under the name "home economics." Most of this instruction is from the portion of the field which concerns the activities of both men and women. Where such work takes special form it is usually concerned

with instruction in some trade, as baking and catering, or as a help in some other undertaking, as courses in camp cookery, which are useful to men engaged in many occupations. Most common of all is the general instruction given in personal hygiene, hygiene of the home, and related topics.

Much work not formally grouped under home economics, but under some other title, is available for boys in schools and for men students in colleges. For instance, instruction is very commonly given in matters pertaining to personal hygiene, including the importance of pure air and ventilation, personal cleanliness, and hygiene of clothing and general data regarding foods, though possibly the last-mentioned topic is not so often included. In some colleges courses in food analysis, including the detection of adulteration, are offered as well as opportunities for special work. Thus, Columbia University, New York City, offers such courses in its academic department. Teachers College of Columbia University, New York, offers laboratory work in food and nutrition, in textiles, including the detection of adulteration, and in other lines, and these courses, like others in the college, are not restricted to women students, though in most cases the classes are made up exclusively of women.

Problems dealing with the purchase of food and other household supplies, and much that pertains to commercial transactions are included in most school courses in arithmetic, and we must not overlook the fact that all of this has a legitimate part in an ideal classification of home economics material, and would necessarily have a special place in home economics courses if it were not provided for elsewhere. Doubtless because the topics appeal to them, boys very commonly gain a better knowledge of business forms and transactions than girls, particularly in matters which pertain to the purchase and transference of property and related questions; and in the case of advanced work which would include property rights, the legal status of different members of the family, and other questions, the advantage is with the men students as regards opportunity for formal instruction in colleges and professional schools, and informal training outside of them. The need for similar training of suitable scope for women students is recognized, and finds its place in an ideal classification of the subject-matter of home economics.

In medical schools instruction is given in ventilation, personal hygiene, hygiene of dwellings and environment, and other topics more or less concerned with the subjects usually grouped under home economics. Furthermore, it is very

noticeable that an increasing amount of attention is paid to food and dietetics, and that such work includes not only lectures and practice in the analysis of foods with a view to determining their composition and purity, but also some instruction in the preparation of foods, naturally with special reference to invalid dietetics. Before provision was so generally made in medical schools for instruction in invalid cookery students who felt the need of the work secured it in other ways. Thus, Miss Maria Parloa, who established a school of cookery in Boston in 1880, gave instruction in sick-room cookery to Harvard medical students, and later some of the medical students from the Massachusetts General Hospital sought similar instruction from Miss Farmer.

So far as can be learned, no college in the United States offers anything like a complete course in home economics designed primarily for men students, either technical in its scope or professional. The agricultural colleges in most cases are co-educational, and a considerable number of them offer courses in home economics. It follows, therefore, that in such colleges men students can readily avail themselves of opportunities for home economics work should they desire to do so. Furthermore, in some of these colleges special courses in some line of home economics are offered for men students.

To cite the instances which have been noted: The University of Minnesota in the high school at the Agricultural College began about ten years ago to teach cookery to the boys. The work extends over three months, but as a whole the time devoted to the subject is rather short, only twenty-four to thirty-six hours a year. The course is very popular. It includes the selection of food, with a view to securing a balanced ration, necessity for cleanliness in preparation and methods of cookery, especially camp cookery. Presumably, the work will be extended. A class in camp cookery has been established for university students, and this, too, is well attended.

The State Agricultural College at Fort Collins, Colorado, has a course in camp cookery, attended primarily by engineers who expect to make practical use of their knowledge of this subject.

In Idaho both the State Normal School at Lewiston and the State University at Moscow give courses in cooking to boys, as does the home economics department of the State College of Washington. A course in camp cookery is given by the University of Maine for the special benefit of such students as expect to engage in forestry work. Instruction in camp

cookery is also given in certain elementary and high schools in Massachusetts to boy scouts, but no details have been secured of its character and extent.

Although home economics subjects are not at present taught to young men at the School of Education of the University of Chicago, a few years ago instruction of this kind to the high school boys proved very successful. Boys in the elementary school of this institution also were taught many of the household arts, not only for the intrinsic value of a knowledge of such subjects, but also for the practical training in correlated subjects. For instance, it was found that in measuring the ingredients required for the preparation of a soup or a pudding the girls and boys learned, incidentally, denominate numbers, fractions and proportion, not only as well as in the usual way from the textbook, but with greater facility. In preparing and cooking a meal boys, as well as girls, learned something of chemistry. The idea on which the work of the school was based is that the process of learning is of far greater value than that which is learned.

Several requests have been received from men who wish to become stewards for hotels and restaurants by the Kansas State Agricultural College for instruction in home economics subjects, although no such courses are now offered. A demand for instruction in table etiquette led to the establishment of a novel method of imparting such instruction. At each of five noonday meals per week three of the young men sat at table with a teacher, and each of the four took his turn in carving and serving. No verbal instructions or corrections were given, but the pupils were expected to learn by following the example of the teacher. Whether or not this plan will be adopted again has not been learned.

Men sometimes take courses in household arts at Teachers College, Columbia University, New York. One who recently took a course in food economics and household economics is about to institute a department of household economics in an educational institution in Philadelphia. Several medical students also have taken courses in practical cookery in Teachers College.

While none of the public schools of Oregon offers special instruction in home economics to boys, several of the high schools admit them to the cooking classes, and in some cases they have taken advantage of this opportunity.

In the State of Utah practically all of the public school boys receive some instruction in home economics. The Agricultural College at Logan, Utah, has a course in home eco-

nomics to which men are admitted. The men now taking the course expect to become stewards, or to take up homesteads where they will be compelled to prepare their own meals.

At the United States Military Academy at West Point much is taught which pertains to home economics, though it goes without saying that this kind of instruction has been provided with no reference to the home economics movement. Rooms must be swept, bedding folded, and everything in perfect order at 6:30 A. M. Bedding and clothes must be folded according to rule, and placed just in their right places. Both person and clothes must be immaculate at all times. Quarters are subject to frequent and critical inspection. Of necessity the cadets are instructed in the proper performance of these tasks, and it is recognized that the training has a value in forming orderly habits, as well as in securing orderly quarters. As stated in the Regulations for the United States Military Academy, 1911, page 89, "The rooms in cadet barracks shall be arranged as prescribed by the commandant of cadets, and regulations for the same shall be posted in each. The rooms shall be in order whenever the occupants are absent."

At the United States Naval Academy at Annapolis instruction is given the undergraduates in the care of their quarters. The rules for the care and arrangement of the rooms are minutely detailed, and penalties prescribed in the regulations of the Academy for the least violation. The care of a ship in all its details is part of the instruction the midshipmen receive on the training ship, and practical work in "ship housekeeping," if one may so designate it, involves cleanliness and order, and much that can be called home economics, though this grouping is without doubt far from the minds of those who give and those who receive the instruction.

Inspired, doubtless, by the courses at West Point and Annapolis, many of the private military schools give their students instruction, indirectly, in what is really home economics, as the care of rooms, equipment and person.

The plan of organization and course of instruction for the "Boy Scouts of America" provide for a certain amount of teaching of home economics subjects. In pioneer days boys received much training in the various home activities, assisting in the duties of the farm and the farm home, and thereby obtaining a practical knowledge and mental training which comes from the handling of tools and the doing of work, as well as a physical development, which is commonly sought by the boys of the present day in athletics or other ways. Specialization in industries and the growth of cities have so re-

stricted boys' opportunities for acquiring the varied training which comes from the performance of such tasks that the value of a movement which aims to supply the deficiency seems evident. The organization is thoroughly described in the official handbook by Ernest Thompson Seton.¹ There is no intention of quoting here any of the details of the organization, except such as have a direct bearing on home economics. The boys are taught in instructions for camping what equipment should be provided, the kinds and quantities of provisions needed for a definite period, the selection of a camp site, the construction of beds, use of lights, importance and ways of obtaining a good water supply, construction and maintenance of fires and camp cookery. Among the other activities taught the boy scouts which might properly be considered as having a more or less direct relation to home economics are first aid to the injured, building a log cabin and making a tent.

Philanthropic societies in some instances give instructions to boys, as well as girls, in cookery and in plain sewing, such as would be of use at the summer camps maintained by these societies. The Young Men's Christian Association in several cities gives similar instruction in its boys' clubs for the benefit of those boys who have an outing in camp.

Another movement which should be mentioned here is the establishment of the "George Junior Republic." This is a self-governing community of boys and girls at Freeville, New York. The young citizens work at various occupations, receiving pay in the aluminum coin of the Republic, which they spend as they please in providing for themselves food, clothing, shelter and amusements. On leaving all money of the Republic possessed by the citizen is redeemed in United States currency. This system provides valuable training in household economics, even if the term is not used in connection with the work. Among the industries of the Republic is a bakery, in which the young citizens bake not only all the bread and pastry used by the Republic, but also a product called "Republic Ginger and Chocolate Wafers" for the market. There is also a thoroughly equipped steam laundry, a store, carpenter shop, blacksmith shop, print shop, barns, butcher shop, dairy and various farm buildings. It is obvious that the knowledge of home and farm activities gained by "doing" is varied and extensive.

In some industrial schools the care of the rooms is a part of the student's work, and of necessity instruction is given in the proper methods.

¹ "Boy Scouts of America." New York, 1910.

At the New York Parental School, at Flushing, the boys receive instruction in baking, laundering and tailoring, as well as in carpentering, plumbing, printing and farming. Each of these activities is followed commercially. For instance, all the laundering and baking for the Brooklyn and Manhattan Truant Schools, the laundering for the New York Board of Education and the Girls' Technical School, and the laundering of the hammocks of the New York Schoolship is done by the boys in the Parental School, the combined value of the products of laundering and baking for the year 1911 being over \$18,000.

The cottage system is in vogue at the Parental School, and the boys learn to do housework, and do all of it in their respective cottages. They also receive considerable instruction in table manners (i. e., the use of napkins, knives, forks, spoons, etc.), and in the proper handling of their food.

Many of the vocational schools throughout the country give instruction in home economics subjects, but it is difficult to draw the line between such instruction and the teaching of certain trades, as, for example, cooking, baking and tailoring. It is also difficult to draw a sharp line between home economics subjects and the kind of instruction given to men and boys in relation to personal hygiene, etc., at various factory welfare institutions.

There are in the United States trade schools for bakers and for men cooks, as there are, indeed, for a great variety of occupations, the object being, primarily, the acquisition of skill in manipulation as a means of earning a living. No attempt has been made to collect information regarding such schools, though it would be interesting to do so. Such schools are nearly always private enterprises. There are, however, three similar schools maintained by the Army, and one by the Navy.

The United States Army has at Fort Riley, Kansas, at Washington Barracks, Washington, D. C., and at the Presidio, San Francisco, California, schools for the training of bakers and cooks for the Army. The curriculum is practically the same at all of these schools, so a description of the one at Fort Riley will suffice to make clear the aims and methods of all three.

The course of study for student bakers at the Mounted Service School, Fort Riley, usually covers a period of four months, although in certain cases this time may be extended or curtailed one month. Students are selected from the enlisted men at the different army establishments by their com-

manding officers with a view to fitness and willingness to take up the work.

For a few weeks after arrival each new man works with a member of the graduating class. Among the duties to which the men are assigned are the making of straight doughs, sponges, yeasts and ferments. They learn to operate bread-making machines, to build and maintain fires, and to use ovens and pans. Various field expedients, including the handling of field ovens, are taught, as well as the duties of sales clerk and supervision of the bread room and of the mixing room. The practical work also includes the making of white, rye and graham bread, rolls, buns and doughnuts. Each student has entire charge of the regimental field bakery for four days of each month, and is marked and graded on the quality of the product on those days. Each member of the graduating class takes charge of the bakery for three successive days as chief baker, during which time he controls all help, makes out all reports, and keeps all accounts required of a chief baker.

In addition to the practical work, a study of the official textbook, the "Army Baker," is required, and five hours per week are spent in the study of such arithmetic as is of use in handling bakers' accounts, unless the student shows on examination that he already knows enough arithmetic.

While not specifically mentioned as part of the curriculum, the care of the person and of all clothing, utensils and equipment used by the student is no small part of the training received by the students.

Upon completion of the course the students are rated according to ability as chief bakers, assistant bakers and non-graduates, a total of 450 points being required for graduation out of a possible 600, made up as follows: Two hundred points for practical work in the post bakery, 100 points for practical work in the field bakery, 50 points for cleanliness and work as mixing-room orderly, 100 points for recitations, and 150 points for examination.

The course of study for student cooks at the same school, as in the case of the student bakers, requires from three to five months, usually four, and the students are selected in the same way.

New arrivals are at first assigned as assistants to first and second cooks at the several organization kitchens. They assist in the preparation of meals and in the cleaning of kitchen utensils and equipment. After about a month these students are promoted to the grade of second cook, and after two months to that of first cook. First and second cooks alter-

nate in the preparation of meals, the one not on duty as cook attending afternoon recitations and fresh beef inspection the following morning. Field expedients are used in the preparation of one meal each week. One week's instruction is given in baking pies, sweet doughs and cakes in the field pastry kitchens. In the last month of the course students act as mess sergeants, and are required in that capacity to demonstrate ability to provide good meals on the ration allowance.

Theoretical work includes a study of the official textbook, "Manual for Army Cooks," and the school regulations. The theory and practice of cooking are taught for two months, and dressed beef inspection and cutting the beef carcass are taught for two months. Instruction in arithmetic is principally in the handling of accounts and the determination of the cost of rations. Graduates are rated according to ability as mess sergeants, first cooks and second cooks.

The men taking both the courses are required to keep their quarters and equipment in order, and are taught how to do this if they do not know already.

That the activities of the Army training schools for bakers and cooks are not limited strictly to the Army is shown by a statement in a recent report¹ of the Commissary General, which notes that during the year 1911 the Commandant of the United States Marine Corps made application for authority to have enlisted men of the Marine Corps take a course in the schools at Washington Barracks and the Presidio of San Francisco, which request was granted, as was also a similar request from the State of Ohio for permission to allow enlisted men of the National Guard of that State to enter the training school for bakers and cooks at Washington Barracks.

A school at the United States Naval Training Station, Newport, Rhode Island, similar in scope to the Army schools, trains cooks and bakers for the Navy. According to data received from the school, the average number of students in attendance varies from sixty to seventy, divided into four classes—commissary stewards, head cooks, cooks of lower rating, and bakers. For commissary stewards the course covers six months; for others, four months.

In the class for lower cooks men are received who have just enlisted in the Navy, and whose knowledge of cooking, particularly of Navy methods, is very slight. There are also a few men in this class who have enlisted in other ratings, and after having seen a little of Navy life, have decided that they would prefer to become members of the Commissary Department.

¹ Rpt. Commis. Gen. (U. S. Army), 1911, p. 7

The men are taught the principles of cooking, and the customs, rules and regulations in vogue aboard ships of the Navy.

The head cooks' class is composed of men who have had several years' service as cooks in the Navy, or who have qualified in the lower cooks' class, and shown themselves competent to take charge of a ship's galley. The men are supposed to be proficient cooks before they enter this class, and the instruction given them is principally along the lines of organization of the galley force, proper supervision of the men under them, cleanliness and neatness in the preparation of food, and care of galley and of person.

The United States Navy Cook Book, prepared for the service at the Newport Naval Training Station, contains recipes which have been tried with success at the school.

The commissary steward class is composed of men who have become experienced Navy cooks, or who have had experience as stewards in restaurants or in hotels. They are taught the principles of the Navy ration, the organization of the force under them, and all other matters pertaining to the general mess aboard ship, over which they have direct charge.

The bakers' class is composed of men who, in civil life, have had experience as bakers, or of Navy cooks who have shown an aptitude for baking and a liking for it in preference to general cooking. Baking in its various branches is thoroughly taught, as are also the custom and routine aboard ship.

In addition to instruction in the preparation of food, both on shore and at sea, the students receive incidentally much teaching of cleanliness and order as applied to their person, and to all equipment and utensils used by them.

In such a summary one must not omit to mention the fact that many boys receive at home their mother's instruction in many things pertaining to housekeeping and the care of the home, and gain a knowledge as useful as any school could impart, which proves of great value to them in after life.

Further search will show that there are many other instances of the teaching of home economics subjects to men students and to boys. What has been brought together will, it is believed, serve to show that the work, though scattered and incidental, is nevertheless fairly considerable in amount. It is also apparent that there is need for extending it if education is to provide all that it might in training for life and its opportunities.

**MR. C. P. CARY, State Superintendent of Public Instruction,
Wisconsin:**

This seems to be developing into a "man versus woman question." I am certain men can be taught to cook. They are often very good cooks. I have no objection to men for special purposes doing these various things reported in the paper just read. But it is my profound conviction that if we want successful homes we must teach our women to take care of the home, and teach our men to furnish the means for carrying on the home. That has been the order of things from time immemorial, and I think it must be the order of things for all time to come.

We find great difficulty, almost insuperable difficulty, in the matter of educating women for any sort of profession or business. By way of illustration, a woman came to the University of Wisconsin as a physician, stayed there a year and married one of the professors. Now he won't allow her to practice, and so her years of preparation are practically wasted so far as society is concerned. I do not say they are entirely wasted. Her training will be of use to her in her own home and contact with neighbors. Nevertheless it is the old story the country over that women preparing themselves elaborately as they sometimes do for various employments settle down to take care of a family. If I were an educational czar I would compel every girl who is capable of doing it to take domestic science and domestic art in connection with our school work.

We have in Wisconsin a law which provides that every girl and boy between fourteen and sixteen years who has dropped out of school must go to continuation school five hours a week. It is our purpose in connection with these schools to give instruction in hygiene and sanitation. In connection with that we have an hour a week for giving them in segregated classes instruction in personal or sex hygiene. The difficulties seem almost insuperable, and we may have to give it up. Society sooner or later will undertake this and treat it successfully. But at present we are all entered upon a conspiracy of silence on this question. There are those who think it too sacred a subject to discuss; and those who think it too offensive. The children and young people are likely to get wrong impressions even from the most careful individuals who teach, and are likely to have ideas stimulated that otherwise would not exist. We undertake the matter with a great deal of caution.

I asked first a number of competent ladies to outline a course on sex hygiene, and also another on domestic science of the same length. I think that boys of fourteen should be taught the dangers of social diseases and sexual excesses and the like. The teaching of reproduction in our high schools is good and there is no difficulty, but it does not reach the mark—the personal side. It is in connection with the personal side, the subjective, that our difficulties arise.

Continuation schools should give girls and boys such instruction as will help prevent infant mortality. These young people have dropped out of school usually because the course of study as it is given does not fit them. They are often not strong intellectually. They are subject to great temptations as they confront the world in the early period of adolescence. The ignorance of people in general is amazing. It is almost impossible to find teachers capable of giving instruction in sex hygiene. Then, too, there are people who think that if you just supply instruction that is sufficient. A few years ago I was asked to speak on this subject in a school. I said I was unprepared to do so, that it was one of the greatest puzzles in connection with my work. One prominent gentleman said, "All you have to do is to give them full information and facts." That had been a theory of my boyhood—that we did wrong because we did not know any better, and I prided myself on the theory then. But I found later that philosophers also held that idea. When I began to observe myself and others, I found it very far from the truth. I was daily doing things that I knew better than to do. So people will act in other matters particularly when strong instincts are back of their actions. Information, and instruction in care of infants will not solve the problem. Some people look at this from the moral side, and others simply keep in mind the health of the individual. In continuation schools we must keep in mind the health of the individual and the good of the race. There is a place for moral instruction in churches and the home, but in the schools the main hold we get on the pupil is on the side of health and posterity.

Infant mortality has its broad, general aspect and its narrow and highly specialized phases. The general efficiency of the home is fundamental in importance. It is highly desirable that both father and mother should possess specialized knowledge with reference to the care of infants. When we raise the question as to the general efficiency of the family from the point of view of the father, we have in mind the average earning capacity, his physical and mental vigor, his attitude

toward family life and the ethical code generally, including sobriety, thrift, reliability and a sense of workmanship. Ignorance, laziness, selfishness, lack of skill, wrong mindedness, drunkenness and unreliability—one or more of these shortcomings will be found at the root of most family inefficiency. On the other hand, intelligence, skill, self-respect and right ideals, together with the economic virtues, practically insure a happy, well-nourished, efficient and progressive family. Children born into such an environment are almost certain to live and thrive, and to become respectable, law-abiding citizens.

The problems for the continuation schools are to develop, in so far as time and opportunity permit, these qualities that make for general economic and industrial efficiency on the part of prospective fathers of families, and to give such direct instruction in the laws of eugenics and personal hygiene as will tend to produce healthy and vigorous offspring. Some phases are difficult to teach with the proper delicacy and effectiveness. We have not yet developed a technique of instruction or reduced the facts to approved pedagogic form, but all this must be accomplished. The problem of such instruction is exceedingly complex, partly for the reason that much prejudice, much in the way of low ideals, much of prudery and much of scepticism stand in the way of bringing it to a successful issue; it will be observed, however, in this, as in all other things, that correct ideas gradually displace false and injurious ones, and that in the course of time the leaven will penetrate every nook and corner. It is especially desirable that both the boys and the girls, who, in the main, have either dropped out of school because of lack of interest, or because of economic necessity, and who are thus early in the adolescent period thrown in contact with the world, with its wiles and temptations, should be protected so far as possible by sane and proper instruction concerning the most vital things of life.

MISS LOUISE KLEIN MILLER, Curator of School Gardens in Cleveland Public Schools:

The teaching of the origin of life to prepare children to appreciate instruction in sex hygiene, the subject discussed by the last speaker, should begin early in a child's life. To attempt to introduce this teaching in formal classroom instruction I believe would be ineffective and possibly harmful. The conditions are unnatural, and in consequence the force of the argument is lost.

Experience has convinced me that most vitally interested and instructive observation are possible in the daily activities in the school and home gardens under the direction of competent, sympathetic and sensible teachers. Simple teaching should begin in the kindergarten, but usually it is delayed until the difficulty is met of removing wrong ideas that have been planted in the child's mind.

Several years ago a teacher who was working with an eighth grade class told me she had been trying for a number of weeks to reach a class of forty boys and girls between the ages of twelve and sixteen in this difficult problem. She had approached the subject from the literature side. Sir Galahad and the Princess failed to make the desired appeal. She realized she was not reaching her children, and came to me for assistance.

I planned a course in Nature Study which would occupy several months. My thesis was "Every part of every organ is for one of two purposes, either the perfection of the individual or the perpetuation of the species; that the individual must become perfect in order that it may transmit perfection; that this perfection may be transmitted either on the physical, moral or spiritual plane."

In the back of the room sat a boy about sixteen years old, who evidently had as much experience in life as some men at forty. He looked at me with half-closed eyes and an expression as much as to say, "I know what you are driving at." This was at the first lesson. As the days passed into weeks and we observed and studied the development of plant and animal life, and he saw that all the form and arrangement of root, stem and leaf was for the perfection of the individual, and that the beauty of color, texture, succession of blooming and adaptation for the dispersal of seeds were provisions for the perpetuation of the species, his attitude entirely changed. Instead of leering at me, his face began to relax, and he began to display a mind opening to truth. It was like the clearing of a stagnant pool, by the inflowing of pure water. Whenever I made a telling point I made it straight at him. It was an interesting psychological study to watch the boy's development under such instruction. It was probably the first time in his experience that the vital functions of life had anything but a low, warped significance.

My school gardening experiences convince me that it is entirely possible to approach the instruction necessary at adolescence and later in a rational way, so that children will grow in information preparing them to receive it without

shock or shame. A child learns in the garden that if his cabbages are worm-eaten and diseased, or full of plant-lice or dust, they are useless as food, and do not produce good seed for the next crop. Then when he studies the corn, have him understand the significance of the tassel and its relation to the silk which comes out of the husk. When the ovules need the help from the pollen in the tassel, open the husk and let him see the threads of silk extending from the ovules. Let him observe the undeveloped ovules whose threads of silk do not extend beyond the husk to receive the vitalizing influence of the pollen. Having observed the pistillate and staminate blossoms of his squash vines, and having realized why the bee must go from one flower to another, that the vine may come to its full fruition, all these things are so beautiful and so wonderful that they give the child *a different attitude toward life*.

One day we found in the garden a squash vine whose blossoms were perfect and the fruit just beginning to develop. The next day it was perfectly limp—dying. We pulled it up, and at the root found grubs boring into the stem. Here was an opportunity for me to have the boys and girls realize that sometimes they think bad thoughts and have bad habits that are out of sight, but that there comes a time when wrong thinking and wrong doing will weaken the individual, possibly producing disease and maybe death.

In these and other ways we have opportunities of giving instructions which will make it possible to have the subject of sex hygiene that may be given later come without embarrassment, if sensibly presented.

Children's gardens save thousands of dollars every year in the market bills of the family, besides giving them better and fresher food. By keeping accounts and bankbooks and other business operations they learn and are starting habits of thrift and industry.

One of the greatest advantages in this garden work is that it binds the father and the mother and the children to their own homes. It is a good thing for a man, woman or child to put seeds in the home grounds, for it unites them to their homes with a common interest. Garden work is beneficial and important on the economic side, on the sanitary, civic and personal health sides. You cannot make a garden unless your yard is clean, and then it becomes sanitary. If you have a beautiful, well-cared-for garden, it becomes civic and economic as well. It will help to reduce the high cost of

living. All these are factors in preventing infant mortality—fundamental factors some of them.

We had a great garden festival this fall, and the children, people of wealth with fine gardens, men and women with greenhouses and gardens for commercial purposes, those who cultivated vacant lots and waste spaces, or who were in any way connected with the gardening, were all brought together in one common interest. It was a beautiful civic week for home-making interests and children's good.

If this can be accomplished in one place it should be a stimulus to other cities. This garden work is wholesome, and as there are so many things that can be taught by it, it is astonishing that it is not carried on more extensively. There were thousands of home gardens in Cleveland last summer. These are continuation schools right in your back yards.

DISCUSSION

JAMES F. BARKER, Principal, East Technical High School, Cleveland:

It were better, it seems to me, to call this personal hygiene, eliminating the word "sex." I do not believe it possible to teach personal hygiene in continuation schools for boys. They come to the evening or continuation schools for a definite purpose. If they have not that back of them they will not come regularly. I have had experience with classes in our machine shops on which to base this opinion. Some of our night school men are woefully lacking in the elements of arithmetic. We started a class in this branch with about a hundred pupils. At the next meeting of the class there were about twenty-five, then a dozen, and finally two or three, and we abandoned the class. The machinist could not see that it was going to help him in earning a living to study arithmetic, though you and I can both see the relationship. I think the same thing would happen if we attempted to teach personal hygiene in continuation school classes. On the other hand, my experience with the social center work teaches me that people come to be amused rather than to be edified. If they can be compelled to come, the case will be quite different. But, at present, the continuation school is voluntary, and so long as it is voluntary, I doubt if we can do very much in the way of personal hygiene, especially with boys. We have met many difficulties teaching personal hygiene in our day Technical High School to boys. With girls it has been carried on successfully for four years; but with a boy the difficulty arises, not when he is before you, but when he gets out from under your influence or control. Then he is a different person and one evil-minded boy in a group will vitiate all the good you are able to accomplish in the class room. For these reasons we have not attempted to teach personal hygiene to the boys in our school. An experiment along this line is to be tried in Cleveland this winter. Perhaps a year hence we will know more about it and have some experience on which to base a future opinion.

SECTION ON EUGENICS

(SECOND CONFERENCE)

Thursday, October 3, 1.30 P. M.

CHAIRMAN

PROF. H. E. JORDAN, University of Virginia, Charlottesville

SECRETARY

MR. ROSWELL JOHNSON, University of Pittsburgh

GENERAL TOPICS

The Eugenic Aspect of Infant Mortality

The Significance of Heredity

SPECIAL TOPICS

Infant Mortality in Relation to the Hereditary Effects of

- a. Tuberculosis**
- b. Venereal Disease**
- c. Mental Deficiency**
- d. Constitutional Weakness**
- e. Occupational Disease**

The Proper Attitude of the Medical Profession

The Proper Attitude of the Church and Charitable Institutions

**The Euthenical and Eugenic Aspects of Infant and Child
Orthogenesis**

THE SIGNIFICANCE OF HEREDITY

By ALFRED G. MAYER, Sc. D., Director of the Department of Marine Biology of the Carnegie Institution of Washington

From Elizabethan times until the recent enactment of the old age pension law, England maintained her poorhouses, where imbeciles were bred and fostered, until today the risen tide of the unemployable threatens to overthrow the body politic, and one in thirty of the population is registered as a pauper.

Here in America a very similar code of poor laws has been at work fostering and perpetuating this misery, which civilization has always borne as a yoke upon its shoulders. Yes, imbecile and epileptic families are being bred in *our own* poorhouses today, and children are being born within such institutions, despite the fact that observation has indicated that if both parents be imbecile or epileptic, all the children must be similarly cursed. Moreover, our schools and refuges for the mentally unsound are daily turning out upon the world persons who are destined to become the fathers and mothers of a generation of degenerates, paupers or criminals.

As an individual, isolated or prevented by sterilization from perpetuating his like, the imbecile is truly an object to inspire compassion, but if this solicitude takes the form of enabling him to become the father of a family, we make of him a monster of terrible import, a curse to the yet unborn.

This new discovery, the law of Mendelian heredity, if it shows us one thing, teaches us to be *truly* merciful and, freed from superstition, false sentiment or false tradition, to do those things in the present which will insure a greater happiness to generations of the future.

It is a vast field of labor, so all encompassing that our keenest students have as yet but scanned its surface. There is room for each and every one of us—the settlement worker, the earnest minister, the schoolmaster and the physician—all laboring now under the direction of a trustworthy principle, and guided by *facts* where hitherto all was vague and undetermined.

Our fathers lacked this knowledge, the comprehension of which is now the truest bond linking charity to science

through the love of man for man. Yet heredity provides only the raw material, which may or may not develop into the full fruition demanded by civilization. History teaches us that great leaders arise only under the stress of stern necessity, the stirring of national emotion, or the struggle to overcome the rule of tyranny or prejudice. Genius can surmount any obstacle save the greatest one of all—the absence of incentive to achieve.

The men who crushed the tyrant Spaniard gave us Holland's golden period of art, philosophy and science. Those who rose against the evils of slavery came as blossoms upon the gnarled old tree of Puritanism. Stirred by the spirit of their times, we saw the men of the Elizabethan epoch in literature, and the Victorian era in science. Such flashes of national brilliancy are always transient, for their very success is their undoing.

New England today is full of men of fine, but unstirred, minds, but their cousins are still conspicuous as leaders in our Middle West, where the call of unsatisfied ambition still is heard.

There is, I think, all too much truth in Gray's simple lines:

"Some mute inglorious Milton, here may rest;

Some Cromwell guiltless of his country's blood."

Heredity, be it ever so potent, is but a potential thing, giving us in each generation the material which high incentive born of stress may develop into leadership. Thus I have little sympathy with the view that men of worth were innately destined so to be, and deserve no credit for their achievement. More pernicious still is the doctrine that criminals, being born to low ideals, are not responsible for their crime.

Granted that the influence of heredity is fundamental, all-pervading and constantly present, and that environmental things are of lesser importance, yet they are by no means to be neglected, and this new science of eugenics will fail in its duty to mankind if it neglects to call attention to the fact that the best can be achieved only when the spark of heredity is fanned into the flame of action. A sordid commercial spirit can never call high spirits to the front unless, indeed, it be to crush its own mean ideals.

Above all let us maintain as inestimably precious the high ideals of culture and achievement both in thought and action, and let the great men of our nation be recognized and honored for the victories they have won as individuals in overcoming the obstacles they faced.

EUGENICS AND INFANT MORTALITY

By H. H. LAUGHLIN, Superintendent Eugenics Record Office,
Cold Spring Harbor, Long Island

Sir Francis Galton defined Eugenics as "a study of all agencies under social control that may improve or impair the racial qualities of future generations, either mentally or physically." It is obvious that if future racial qualities are to be improved at all, such improvement must be wrought by a fecundity differential between the more gifted and the inferior strains in favor of the more gifted. No less than a differential fecundity there must be also a differential survival in favor of the better blood. In order to encourage the mating of the best with the best in eugenically fortunate unions, the knowledge of the special behavior in heredity of specific mental and physical human traits must be greatly extended, and such knowledge must be widely diffused among the more sterling classes. In order to prevent the procreation of defectives, the members of the inferior strains must be segregated or sterilized, or otherwise prevented from increasing.

The Spartans in destroying weakling infants doubtless did a eugenical thing. But not even the most ardent advocate of race improvement, anxious to enlist every available eugenic force, would today consent to the eugenic destruction of the children of defectives, either through positive intent or through failure to administer every possible care.

The eugenist rejoices if the fecundity of the better blood rises, and that of the social misfit falls. But the eugenist must agree with the euthenist that a child once born must be given all possible aid in its struggle for decent and effective adulthood that a solicitous and nurturing civilization can render, even if because of some later social misfitting the individual ultimately must be deprived of life or of liberty, or because of some hereditary taint must be denied the rights to increase his kind. This seems to be a fair common meeting ground for the conservation of the best racial qualities, and for a kindly solicitude for all human life.

Regardless of the lengths to which an enlightened society is willing to go in order to purge its blood of defective traits, it does not alter the fact that the differential survival of infants is a genetic factor boding either for good or for ill, and is, therefore, a proper subject for eugenic investigation.

The following tables were prepared from data collected at first hand by the Eugenics' Record Office, and the records

selected for this particular study were taken in serial order without any regard to fecundity or to infant mortality. The data on normal families were taken from the Family Records of the better class of American families—lawyers, ministers, teachers, artists, scientists, farmers and business men. The data on sub-normal families were taken from the reports of the field workers of the Eugenics Record Office on degenerate epileptic, feeble-minded and insane families. Infant mortality covers all cases of children dying under three years of age, including still births.

Both the Family Records and the field workers' notes were compiled with care and discrimination. This criticism, however, must be made—a normal man or woman recording his or her own family history, having in mind family traits, would be more apt to fail to record an infant's death than would a field worker trained to enquire into every circumstance, including infant mortality, of the family studied. If this is true, then the following tables show a relatively too high an infant mortality among the defectives, and both an absolutely and a relatively too low an infant mortality among the better classes. A future study based on more extensive data without the possibility of such error, must be made in order to verify or correct these tables.

TABLE I.—FECUNDITY AND INFANT MORTALITY DIFFERENTIAL
BETWEEN NORMAL AND SUB-NORMAL FAMILIES

	Normal Families	Sub-Normal Families
Number of matings.....	701	1054
Total number of children.....	3227	4640
Average number of children per family.....	4.6	4.4
Infant mortality—		
Male.....	131	463
Female.....	109	237
Sex unknown.....	27	106
Total.....	267	806
Percentage Infant Mortality.....	8.3	17.4

TABLE II.—RELATION OF GRAND PARENTAL TYPE TO INFANT MORTALITY IN SUB-NORMAL FAMILIES

Type of Grandparents	Number of Families	Number of Children	Average number of children in family	Number of Infant Deaths	Percentage of Infant Mortality
Alcoholism in one grand-parent.....	61	279	4.6	59	21.2
Alcoholism in two grand-parents.....	7	39	5.5	11	28.0
Epilepsy in one grand-parent.....	26	123	4.7	25	20.3
Insanity in one or in two grandparents.....	34	147	4.3	24	16.3
Feeble-mindedness in one or in two grandparents.....	19	57		14	24.5
Totals and average.....	147	645	4.4	133	20.6

TABLE III.—RELATION OF PARENTAL TYPE TO INFANT MORTALITY IN SUB-NORMAL FAMILIES

Type of mating	Number of matings	Total number of children	Average number of children per family	Number of Infant Deaths	Percentage of Infant Mortality
A x X	106	545	5.1	113	20.7
A x A	12	58	4.8	13	22.4
A x F	8	48	6.0	17	35.4
A x I.	2	8	4.4	2	25.0
A x E	2	16	8.0	5	31.2
F x X	29	110	3.7	29	26.3
F x F	8	61	7.6	7	11.4
F x I.	4	20	5.0	3	15.0
F x E	1	10	10.0	4	40.0
I x X	34	154	4.5	25	16.2
I x I.	3	20	6.7	2	10.0
E x X	28	114	4.0	12	10.5
Mixed	14	78	5.5	18	23.0
Total....	251	1242	4.9	250	20.1

A—Alcoholism

F—Feeble-mindedness

E—Epilepsy

I—Insanity

X—Not A, F, E nor I

TABLE IV.—RELATION OF FRATERNAL TYPE TO INFANT MORTALITY IN SUB-NORMAL FAMILIES

Fraternal Defect	Total number of children in families	Number of children affected	Percentage of children affected	Number of Infant Deaths	Percentage of Infant Mortality
Epilepsy	456	96	21.0	99	21.7
Insanity	346	75	21.6	44	12.7
Feeble-mindedness...	403	101	25.0	70	17.3
Tuberculosis	414	120	29.0	62	15.0
Neuroticism	289	61	21.1	32	11.0
Alcoholism	414	89	21.5	53	12.8
Total	2322	542	23.3	370	15.9

NOTE—The families appearing in Table I but not in subsequent tables were omitted because the data needed for the latter tables were not included in the descriptions of all the families.

The foregoing tables (again see criticism in paragraph preceding Table I) indicate *for the selected classes studied*.

1. A small differential fecundity in favor of the normal over the sub-normal families.

2. That infants born into sub-normal families suffer thereby a great handicap in their struggle to survive infancy. Compared with normal families this handicap seems fairly to be represented by the ratio 2:1.

3. Between male and female infants of normal families the differential mortality handicap of the male infant is represented approximately by the ratio 5:4. In sub-normal families this handicap is represented approximately by the ratio 2:1.

4. That to a child born into a normal family the chances of surviving infancy are approximately 11:1.

5. That to a child born into a family characterized by alcoholism, epilepsy or feeble-mindedness, the chances of surviving infancy are approximately 3:1. In families characterized by insanity the chances of survival are approximately 5:1.

The relative proportions of the above handicaps, due to bad environment of necessity furnished by defective families, and to inborn inability to withstand the stress of infancy, must be determined by further study.

INFANT MORTALITY IN RELATION TO THE HEREDITARY EFFECTS OF TUBERCULOSIS

Statement by the Chairman, PROF. H. E. JORDAN

I had hoped that we might have a paper from Professor M. P. Ravenel, of the University of Wisconsin. But in that I have been disappointed. I should like to say a few words on this particular topic. We have for a number of years felt that tuberculosis has a hereditary aspect, and the point I should wish to have discussed at this meeting is the importance of the factor of heredity in pulmonary tuberculosis, more especially as bearing upon infant mortality. There are certain families in which tubercular mortality is very heavy. There is at work apparently the influence of a factor of heredity. We have attempted for over a year to gather pedigrees of tubercular families, and with the help of Dr. Lewis Booker, of Montrose, N. C., have succeeded in getting a few. It is very difficult to get precise information with regard to grandparents, and almost impossible with regard to great-grandparents. And unless we have information regarding a good many individuals of at least three generations, we have no basis for inference respecting the factor of heredity. But in a half dozen cases data was secured of grandparents, and in a few of great-grandparents. And the evidence here seems conclusive that heredity plays a large part in tuberculosis. I mean the inheritance of a lack of resistance to tubercular infection, or the inheritance of a susceptibility or lack of immunity. In all of these pedigrees where the information given was of a positive nature we may be sure that those persons so designated really were tuberculous. In one case we have the pedigree of four generations in which both father and mother in every instance were tuberculous; and in every resulting generation all of the children were tuberculous. That indicates, on the basis of what we know of inheritance of characters in humans and higher mammals that we are dealing with a lack of resistance to tubercular infection, which, in turn, suggests the lack of a determiner for immunity. When that is lacking then that person is susceptible to tuberculosis. And from what we know of the Mendelian method of inheritance, those who lack this determiner of resistance can have only non-resistant children. A tuberculous individual may marry a non-tuberculous with relative impunity, but those children mating with their

kind will again have abnormal children in the proportion of one to three. One in four is likely to be tuberculous. The chances are that that particular one in four, however, may not happen. But it is serious for the tuberculous to mate with tuberculous; and for an apparently non-tuberculous (simplex) to mate with a true tuberculous (duplex). In the former case, all, and in the latter, half, of the children are likely to be tuberculous. I believe that the scientific evidence warrants physicians in advising against the intermarriage of the tuberculous. I should like to have that point further discussed.

THE EUGENICAL ASPECT OF VENEREAL DISEASE

By F. E. JORDAN, Ph. D., Chairman of the Eugenics Section

The most insistent reason for the eradication of the venereal diseases, namely, the eugenic, does not seem to have received adequate popular emphasis. Public sentiment is gradually being evolved, and legislation framed to protect the race against the reproductive libertinism of pauper, criminal and idiot. Also, society is now quite generally fully protected against such serious contagious diseases as diphtheria, scarlet fever and smallpox. But nothing short of criminal negligence still prevails almost universally in the matter of protecting both the present generation and the future race against the dangers of syphilis and gonorrhœa. There exists not a single valid argument against the legal registration, isolation or detention and prohibition from marriage of certain contagious gonorrhœal and syphilitic patients. It is my purpose to present what appear to me irrefutable arguments for the statutory limitation of venereals, to attempt to discover the speciousness of the arguments sometimes urged against legal restrictive measures, and thus to evoke discussion by competent authorities on this matter so supremely significant from the standpoint of the future race.

A serious consideration of the widespread prevelancy and racial harm of the "social diseases" leaves no shadow of doubt that they are fundamental and extremely pernicious anti-eugenic factors. Attention to other eugenic endeavors will be of little final avail unless we include in our program also a crusade to the death upon venereal diseases. No interest can be paramount to that of the race. There can be no loftier motive than that to aid in the production and universal establishment of the highest type of physical, moral and intellectual man within limits of human protoplasm. This should appeal to the altruistic instincts in every healthy young man and young woman.

This being granted, all questions of practicality and constitutionality must give way to *right*. Nothing can be more practical than the elimination of economic and racial inefficiency. If constitutions, state or federal, stand in the way

in state colonies of all social dead-weights, including the epileptic, insane and feeble-minded, chronic inebriates, syphilitics, rapists and sexual perverts.

The student of orthogenics finds himself in sympathetic accord with the fundamental aims of the eugenic movement. In our efforts to fashion a race of human thoroughbreds nothing less than the eugenical ideal is wholly satisfying. Moreover, we have a right to judge any proposed euthenical measure in the light of the eugenical ideal. Any euthenical measure which is manifestly anti-eugenical should not be encouraged. Thus legislators may well pause before favorably considering various measures now being advocated in various civilized nations which are threatened with depopulation. The probable immediate effect of paying bounties out of the public treasury to mothers for the support of babies would be the increase of neuropathic stock, so that, ultimately, society would succumb under the ever-increasing burden. But while the eugenical conception is impregnable as an ideal, the student who is seriously interested in the cause of eugenics must recognize that there are almost insuperable difficulties in the way of the effective application of its principles, and that progress in the work will depend upon the measure in which these difficulties are successfully overcome. We may group these difficulties into four classes:

1. *Psychological and sociological difficulties.*

Effective reform of human practices is scarcely possible without the aid of the emotional forces of human nature. But man's emotional development has not kept pace with his intellectual progress. Emotionally human nature is very much the same today that it was in the days of primitive man. This is explainable on the assumption that the emotions are merely the subjective side of the instincts. Therefore, in trying to transform the sex life of the race we are obliged to deal with a set of emotions which are connected with one of the three oldest and most basal instincts of the race, namely, the sexual instinct. Now, it is at least supremely difficult, if not utterly impossible, suddenly to change instinctive racial reactions by mere instruction, demonstration, exhortation or legal enactment. An instinct has become deeply imbedded in the very fabric of the psycho-biological life of the individual as a result of age-long racial conflicts, by slow and painful processes of elimination and survival. Therefore, instincts have acquired a degree of stability, pertinacity and emotional intensity which render them almost invulnerable to merely

them die from native debility, an inaptitude for life, a lack of what may be termed 'biologic capital.' Many of them succumb to slight causes or disease or die without apparent cause. The chance of an infected child dying under fifteen years of age is nearly seven times greater than that of the child free from syphilis. As an evidence of lowered resistance occasioned by hereditary syphilis, a careful analysis of all cases of infectious diseases in children shows that, exclusive of widespread epidemics, the chances of a syphilitic getting typhoid fever are nearly two and one-half times as great as for a non-syphilitic; for scarlet fever three times; for measles three and one-half times; for diphtheria nearly seven times. Syphilis lowers not only the constitutional, but the local, resistance. Thirty per cent. of the children with tubercular hip disease are congenital syphilitics. In tubercular meningitis the percentage is as high of 60. Forty per cent. of the cases of gastro-enteritis are syphilitics. A final result of hereditary syphilis is the inability to procreate healthy children. If they grow up and marry, they are liable to transmit the same class of organic defects to the third generation."

Under the heading "Prudery," in an article on "The Sterilization of Criminals and Defectives," Dr. John N. Hurty, State Health Commissioner of Indiana, writes thus: "What are we doing for posterity in the protection of human blood and human health? We are permitting thousands, tens of thousands, hundreds of thousands of human beings to marry and reproduce their own kind, when at the time of their marriage they are deviates, or they are afflicted with syphilis or with gonorrhœa, or possibly with both, which diseases will not only cause death, but will visit themselves unto the third and fourth generations in the forms of blindness, bone diseases, insanity, imbecility, nervous wrecks, all varieties of tuberculosis, moral degenerates and pervers. We are doing this because we will not stop it, not because we cannot. 'Tis puling, pury prudery which prevents. We are filling our almshouses, hospitals, jails, penitentiaries and homes for the morally and physically unfortunate by our refusal to meet the social question, the sex problem, the prevention of the procreation of degenerates in an honest, sensible, pure-minded manner. The medical fraternity knows the horrible price modern society is paying for this prudery. Their hospital records and the records of their private practice, were they made public, would be the blow that would stagger humanity."

The need for some radical, immediate action must surely be obvious.¹ But what can be done? And how? The problem is more difficult than that of preventing the reproduction of ordinary defectives. Here sterilization (vasectomy) can be resorted to. But such measure will not help in the case of syphilis and gonorrhœa, for here the danger of general infection would still remain.

Registration, in order that the public may be in a better position to protect itself against this type of infection; detention under custodial care until pronounced permanently cured by expert authority, in order that the source of infection may be properly controlled; and legal prohibition to marriage, in order that innocent and noble (racially) women may not be betrayed into a life of misery and sterility, and that children may not be born with blighted heritage. One or the other of these safeguards will not alone be effective in meeting the demands of the situation; all together, coupled with an educational propaganda, must be observed coincidentally.

What are the difficulties regarding registration? First, expense. But in a country as potentially rich as America, and one that spends more than \$100,000,000 annually in caring for its deficient and unfortunates, this additional expense is a mere bagatelle. The creation and maintainance of the necessary machinery for registration are relatively simple matters. Such notification machinery has, since May 1, 1912, been in operation in the public institutions of New York City, and since recently in the state of California.

How will regulation effect the solicitation of professional help on the part of those infected? Will not some continue untreated, become more virulent foci of infection and of protracted standing, suffer needless incapacity, and die a needless death in consequence? Possibly. But this condition is an inevitable transition phase from the old to the new order of things. Moreover, it being common knowledge that infected individuals will be registered in the Department of Health, many candidates for debauch may be restrained from taking the risks. Once the public is properly informed concerning the true and serious nature of syphilis and gonorrhœa public

¹The great seriousness of the situation must be patent to all in the light of the following conservative estimates gathered from authoritative sources: about ten per cent of the population is syphilitic; about one-half of this syphilis is innocently acquired; at least twenty-five per cent of hereditary insanity (very conservatively estimated at about forty per cent of the total) is due to syphilis; at least sixty per cent of all adult males have or have had gonorrhœa; the mortality from syphilis and gonorrhœa is greater than from tuberculosis, and almost as great (deducting for epidemics) as for all other infectious diseases taken together; New York City alone is said to have no less than 225,000 venereal patients, and no less than 20,000 prostitutes.

sentiment will not simply tolerate, but indeed demand, registration.

What are the difficulties in the way of custodial care? Again, great expense. But wars have been fought and are being paid for (we are spending today nearly \$1,000,000 a day—72 per cent of our government revenue—for support of the army and navy); enormous quantities of tobacco, liquor and narcotics are still being consumed—without good, indeed with positive harm to the race—and the whole expense is patiently and cheerfully borne. The nation's chief asset—its child product—receives relatively scant attention. Perhaps if it were made clear to our generation that in consequence of our supine indifference and our shortsighted satisfaction with simply palliative measures, our children and grandchildren will inherit unbearable burdens in the shape of enormous demands for the support of ever-increasing misery and incompetence, and that the welfare of the race is being jeopardized, we might become willing to sacrifice the enjoyment of superfluous comforts for this altruistic end of racial salvage. Surely no other course seems to hold such promise of permanent solution.

What are the difficulties in the way of procuring and enforcing restrictive legislation against the marriage of gonorrhoeal and syphilitic patients? In this case only relatively small expense. But we will have to combat here legislative lack of information, public prejudice, moral inertia, legal conservatism, clerical and institutional opposition, medical professional ethics, and the universal traditional feticism of "personal liberty" and "equal rights." In only four of our states are venereal diseases a bar to marriage. Perhaps all that is needed, however, to overcome the opposition is a common-sense educational propaganda. Progress may be slow, but a successful issue is inevitable.

Dr. Charles Eliot's remarks (The Crusade for Sex Hygiene) seem pertinent: "It is absolutely inconsistent with all other public health measures that venereal patients, patients with syphilis or gonorrhœa, should be allowed to keep these diseases secret, should be walking about the streets, working in the shops and factories, sitting in the street cars and frequenting the hotels. We do not allow such conduct nowadays with regard to any other contagious diseases. * * It is high time, gentlemen, that this practice within the medical profession should be brought to an end, and that all venereal diseases should be registered and made subject to control as scarlet fever, diphtheria and smallpox are. Indeed,

the reasons for publicity with regard to venereal diseases are stronger than they are with regard to any other of the contagious diseases. In the second place, cities and states should make large public provision in dispensaries and hospitals for the treatment of the venereal diseases. They should be treated with a view to prevent their further distribution through the community.

"In the third place, the practice of the medical profession needs to be completely changed in regard to their sense of responsibility towards innocent people who may be infected by persons whom the physicians know to have venereal disease. That is a very important point, and it is going to be a very difficult point in the prosecution of this crusade. It is the practice of many physicians to conceal the fact that the young man who is under treatment for venereal disease is so affected, even when the physician knows that the young man is about to marry an innocent girl. Many physicians justify that concealment, and say it is the only mode of action consistent with the general ethics of the profession, namely, a sacred confidence between the physician and his patient. That sort of ethics ought no longer to be endured."

But the most important phase of the evil, the primary cause of its considerable prevalency, even among the better classes, remains to be considered, namely, prostitution.

The white slave traffic today is estimated to cost the United States \$3,000,000,000 annually.

The publication of the report (1911) of the Vice Commission appointed by the Mayor of Chicago—a commission composed of some of the best men and women of the city—gives cause for hope that measures for the extermination of prostitution will soon receive more general intelligent consideration. Above all, the report makes very clear that prostitution is not a negligible evil, but one of prime and fundamental import. When we are told that in Chicago alone \$16,000,000 are the profits annually accruing from this vice, served professionally by 5,000 (the most conservative estimate, probably about 8,000) potentially useful young women, and patronized by thousands of the best of the young manhood of our country, the evil appears as the most momentous that society has to contend against. For the ruin of this fair manhood, the consequent frequent suffering and sterility of their later marriage mates, and the blasting of little children's lives, presents a picture truly appalling. Multiply Chicago proportionately by the number of cities in this country and the world, and then contemplate the enormity of the results in terms of misery, degradation,

poverty, blasted homes, ruined lives and racial injury! Truly this is not an evil that we can longer afford to harbor and neglect. Miss Jane Addams, of Hull House, Chicago, in her recent series of four splendid articles in McClure's Magazine (1911-12) on "A New Conscience and an Ancient Evil," sympathetically portrays the evil in faithful colors and proper perspective. She would pay the price of another Civil War, if need be, to rid the country permanently of this curse, and deem it infinite gain. It is most gratifying that social workers of her type and calibre sternly refuse to compromise with medical inspection, segregation or "regulation" (reglementation), in short, with anything less than absolute eradication. To say that to abolish an evil as old as the race is impractical or impossible is to belie one's native aspirations for a better world, and one's perennial faith in the final triumph of right. If prostitution ought to be abolished, if it be possible, *then it can be abolished, for what is right is possible*. Indeed, for the life of the nation and the race it *must be abolished*. And the fact must not be ignored that it is perhaps as much an economic and social as a moral problem.

One wishes to solicit here especially the help of the medical profession, who too frequently simply connive at prostitution and its sequelæ of syphilis and gonorrhœa; and of the clergy, who largely ignore the latter in their relation to marriage. It is wrong, also, that physicians to venereal patients should count fidelity to the Hippocratic oath as of more consequence than the saving of an innocent girl from a necessarily unhappy marriage, and her offspring from probable defect. If the Hippocratic oath works such ill, it ought no longer to be administered. Nor will properly trained, high-minded physicians any longer respect it in those instances where it means harm to an unsuspecting individual or the unborn race.

Men have long held the legislative reins. Concerning those matters which relate most closely to woman's welfare and that of the race, they have either been largely indifferent or frequently bungled. They need expert advice from those most intimately concerned—the women—to whom the future race is most closely related. Only woman can fully know the price paid for human life. She will no longer tolerate, I believe, to have so valuable a thing so recklessly produced and so ruthlessly squandered.

Women will soon be universally admitted to equal suffrage with men, simply because it is *right* that they should be if they desire—and men know it. The suffragist movement contains great possibilities for powerfully abetting the eugenic

propaganda. Woman will legislate to properly protect herself as the "mother" of the race against wanton infection. She instinctively feels more keenly the importance of conserving the greatest national asset—human life—and will bring about proper action for the preservation of the best elements of the race. Of course, we shall probably have to pass through a period marked by radicalism and extremes. This is perhaps inevitable. But eventually men and women will together work out some legal and ethical code of life in accordance with the best eugenic ideals.

The future generations are mutely pleading with the young manhood and womanhood of our country to keep personally undefiled, to take serious and intelligent note of social misery and havoc produced by venereal diseases and to help create such public opinion as will compel legislation guarding the interests of the unborn against the ignorant, indifferent or anti-social members of our present-day society.

In resume:

Venereal disease is responsible for a large quota of infant deaths and much human misery. The havoc produced by gonorrhea includes sterility of frequently noble stock, pre- or early post-natal death, and constitutional injury of offspring. The hereditary effects of syphilis also, in terms of genetic injury, low resistance to disease and infant mortality, are unquestionable. Since venereal diseases are contagious and communicable, efforts must be more universally made for their control similar to those employed in the care of smallpox, diphtheria and scarlet fever. Effective isolation of all uncured cases is demanded. This presupposes some adequate system of notification; which condition of affairs waits upon proper legislation. Since the chief source of venereal disease is prostitution, attention must be paid to this social maladjustment. No compromise can be countenanced; absolute eradication of prostitution, whatever the material difficulties, must be the immediate aim of our efforts along this line. Furthermore, there is urgent need of more widespread early education in matters of sex and reproduction. And the well-meaning but short-sighted attitude which regards venereal infection as retribution for sin must be corrected. The disease should be treated as *disease*, and the same methods employed for its control and eradication as are followed in similar non-shameful diseases, namely, universal notification and strict isolation.

EUGENICS AND MENTAL VARIATIONS

By ROSWELL H. JOHNSON, M. S., University of Pittsburgh

One year ago evidence was presented in this section showing a very high mental variability obtained by the Binet-Simon tests, and also some evidence of the inheritance of these variations. Since that time a great deal of work has been done with these and other tests, and the coming year will show the publication of much additional data, all making very definite the fact of a high variability in mental quality. The inherent difficulties in getting data upon the parents makes the demonstration of inheritance of these qualities much slower. Such work and the experimental study of racial difference are now of pressing importance.

The early extension and standardization of these tests is very important because of the great needs for their application as follows: The recent striking decline of the birth rate in all advanced countries has led to the proposal of baby bounties, directly as in France, or indirectly as in the case of the maternity benefits of the new British Insurance Act, and many other propositions receiving a great deal of attention, especially in Paris. All such propositions must assume that all infants are equal, or that superior parents will be as much influenced thereby as inferior. The first assumption is so egregiously false that it requires no refutation here. Pearson's statistics as to the effect of child labor on the birth rate, as well as the general inverse correlation of income and number of children, show clearly that the additional children that would be produced by such bounties would be by inferior parents in the long run. It is clear, therefore, that all such bounties must be on a sliding scale, graded to the quality of the parents, or, at least, to that of the mother, if we would not produce a very unfortunate result. Such a determination can be properly based only on competitive tests. Pending the establishment of these, the amount of education received without retardation on the part of the subject would be a passable makeshift, especially since long division is unattainable by some mental grades and mental inferiority quickly shows itself by retardation in the schools.

Another application much needed for competitive mental tests is in the examination of defective criminals. We find

the sociological journals devoting a growing amount of space to the extension of the parole and rehabilitation of criminals. We know now, from studies at Bedford and Elmira, that a large percentage of these criminals and of prostitutes are mentally defective, and hence grave menaces as possible parents. The use of mental tests will make it possible to retain such defectives (unless it seems wise in some cases to give them their liberty sterilized). Certainly the wholesale curtailment of imprisonment by means of parole, pardon and repeated fines, especially that by sentimental and ill-guided governors, is now quite too indiscriminate. Let us remember that imprisonment has a eugenic function in addition to its punitive and reformatory ones.

It has been suggested that feeble-mindedness may be always a defect, and because so many other defects are recessive, that this, too, may be found recessive. As a hypothesis, this is well worth considering. But to draw the conclusion at this time that, therefore, we need not check reproduction by a feeble-minded person, but only take measures to limit his or her mating to marriage with a normal individual, is certainly premature.

The following considerations make it seem very probable that feeble-mindedness is not one recessive characteristic, or a group of characteristics all recessive:

1. The feeble-minded themselves vary greatly. The quantitative comparisons of feeble-mindedness that have been published by Goddard and Huey show this in a high degree.

2. Similar quantitative studies of school children, such as Goddard's, Burt's, Bonser's and my own, together with the numerous studies of retardation by school grades, show a large number of backward children grading down to feeble-mindedness.

3. The data relied upon to show that feeble-mindedness is recessive has been obtained principally by yes or no statements as to feeble-mindedness, without precise criteria.

4. Since the feeble-minded, particularly the females, generally mate with normal, we should have very many apparently normal progeny to the relatively few actually feeble-minded. Under these circumstances we should find the feeble-minded frequently arising from normal parents in a proportion of 25 per cent, if feeble-mindedness is one unit character, in a very much smaller percentage if feeble-mindedness is a combination of several recessive unit characters.

The matings of feeble-minded and normal give a much greater percentage of feeble-minded individuals than this, and

in addition many backward individuals, in Goddard's and Huey's published pedigrees.

Under these circumstances the advice that the mating of normal and feeble-minded may be approved is dangerous. Let this Association urge with emphasis the plea that Mr. Hart made on this platform last year—that every state must provide institutions for its feeble-minded, not only for children, but for the women as well under 46 years of age (except those that are sterile). The state must not only provide these free institutions, but must also provide some machinery by which every feeble-minded child and woman shall be found and committed. Probably the school census affords the best means for this work.

The privilege of keeping the feeble-minded child at home or in a private institution should be carefully administered by a committee of competent inspectors, and the privilege should be withdrawn if the specified surveillance over the patient is found to be lax.

INFANT MORTALITY IN RELATION TO THE HEREDITARY EFFECTS OF MENTAL DEFICIENCY

By HENRY H. GODDARD, Ph. D., Director Research Department,
The Vineland Training School for Feeble-Minded Children

There are those who profess to have a contempt for philosophy, and yet the philosopher is the only benefactor of his race. One may not know the Aristotelian doctrine of Catharsis, nor Bishop Berkeley's theory of mind and matter, nevertheless one must be able to see the different facts of life in some thing of their true relationship in order to act wisely, and in a way that will really benefit humanity. And after all, philosophy is nothing more or less than the fitting together of all the different facts of all the sciences in order to make a consistent whole.

It is with great satisfaction that I see that this Society is taking up the problem of Infant Mortality from the philosophical standpoint, and that the object of this particular meeting is to consider infant mortality in relation to *hereditary* defect. There is always danger of being one-sided. Indeed, man's greatest difficulty in life in the present day seems to be to keep his balance, and apparently the higher we get in our civilization the more liable we are to get dizzy and fall over to the one side or the other. In this matter of infant mortality we are in danger of reasoning fallaciously, more through false premises than illogical procedure. We say death is an evil; therefore banish death. It is particularly distressing to see the poor innocents die; therefore we must exert all our efforts to keep them alive. It is a curious paradox that the greatest philosopher that ever lived promulgated a philosophy and a religion, the very essence of which is the unimportance of this life and the great value of a spiritual life beyond; and yet we, his modern followers, have gone to the extreme of maintaining that the thing of utmost value is life. Cicero seems to have demonstrated that death is not an evil from any standpoint. It is quite possible, even, that the death of infants is sometimes a blessing rather than otherwise, not only to humanity itself, but to the infant.

To put the matter in another form, we, as human beings, seem to be swayed in our actions by two kinds of influences. We may call these our emotions and our reason. Speaking

of individuals, we would call the one person an emotionalist and the other a rationalist, perhaps a "cold scientist." Of the two, one may not know which to prefer. But we are not compelled to choose either extreme. All history, both of nations and of individuals, shows that there is a golden mean; that our emotions should be tempered by reason and judgment, and that our reason should be somewhat modified by our feelings.

Mankind has been swayed by many kinds of feeling, but he has seldom guided his course, at least in groups, by very much reason. Man has recently come into possession of an exceedingly dangerous weapon. Having studied nature now for some years, and having developed considerable science, we are beginning to attempt to control nature. If we knew all, that would be wise; but with our partial knowledge it is inevitable that in our attempt to control nature we shall make many serious blunders, possibly fatal ones. Nowhere is this more imminent than in the matter of life and death. In nature death is not an evil, but the great preserver of equilibrium. Until recently the same law of the survival of the fittest which applies to plants and the lower animals applied also to man, but of late the humanitarian side of us has become so strongly developed that we are interfering greatly with this natural order. I am not proposing that we should be less humane, or that we should revert to the old methods, but it is necessary to insist that along with our humanity there should go considerable philosophy; that our emotionalism should be tempered by reason and judgment.

As applied to our specific problem, the following seems to be the situation: We know now that a surprisingly large percentage of people are of such low mentality that they are incapable of living what we term a normal life. They have not judgment or intelligence enough to do those things that make for happiness and prosperity. Moreover, it is in this group of people that the birth rate is highest. Furthermore, because these parents are ignorant of how to take care of their children, and because the children have inherited the parents' weaknesses, a large percentage die. It is the inexorable law of nature. They are not fit by endowment to survive, and, therefore, nature takes them away. But now man, with his superior intelligence and his highly developed humanity, steps in and says that they must live. We will see to it that they do live. Another fact that we have learned is that these people of low intelligence transmit that low intelligence to their children, and that consequently a large percentage of these children, if they live and grow up, will be mentally deficient, will always be a burden on society, and more or less a burden

to themselves. Therefore, when we step in and keep these people alive, we are simply laying up trouble for ourselves and trouble for these same children.

Again, I hasten to say that I am not arguing in this paper that we should not keep them alive. I do not believe that we can do any different and maintain our humanity, but the whole point is that at the same time that we do this we must do something else also. We must not think the problem solved or our task done when we have insisted that these children should be kept alive and grow up to be adults; but we must see to it that society does not suffer from the consequences of the mental defect of these people, because mentally defective many of them will be; and if not mentally defective, many will bear in their constitutions the physical weaknesses that they have inherited, and that again will be transmitted and contribute toward producing a weakened race. Certainly in the light of all that we are beginning to know of eugenics, we cannot tolerate for a moment the thought of thus consciously and definitely going against all that eugenics teaches us, and of aiding and abetting the establishment among us of a race of defectives, degenerates and weaklings. If our humanity will not allow us to let these children die as infants, our humanity certainly does not prevent us from insisting that they shall be the last of their race, and shall never become parents of more children like themselves.

We must not stop half way in our attempt to solve the problem.

A beggar stops me on the street and asks for alms. My whole heart goes out toward him, and I am inclined to hand him a coin. But my science comes to my aid, and I realize that by giving promiscuously in this way I am not helping him, I am really doing him an injury. I am tending to continue the condition of life in which he lives, to promote beggary and improvidence. I, therefore, refuse to give him the coin and go my way.

But if I stop there I am doing something that is equally wrong. I simply become the cold scientist instead of the humane fellow-being. My real duty is to go behind the conditions as I meet them, and discover what underlies; discover why that man was begging, and remove the cause of his begging.

The same thing applies to our problem of infant mortality. Could we shake loose our humanity, we should say let these children die. If they have not inherited enough vitality to live under ordinary conditions, this is only nature's way of

ridding the world of weaklings. But since we cannot do that, we must go to the very bottom of the problem and seek for the cause.

That our contribution may be positive rather than negative, let us see what sort of a plan of action can be formulated. Two per cent. of all school children are feeble-minded, and it were better had they never been born. What per cent. of the children born, but who die in infancy, would have been feeble-minded had they lived we can only conjecture. It must be high. It is estimated that one-fourth of all the children born die before the age of two. It is clear, therefore, that as soon as we succeed in keeping alive a large percentage of these, we will surely increase our percentage of feeble-mindedness, and thereby add to our social problems of pauperism, prostitution and crime. A comprehensive plan of action would seem to be something like the following:

First, a careful study into the heredity of all of these children. This would enable us to divide them primarily into two groups—those with normal heredity and those with feeble-minded ancestors. The latter group will, according to present indications, be either feeble-minded or capable of transmitting feeble-mindedness to their offspring. All such cases should be carefully recorded and watched throughout their childhood and youth. Those that prove to be distinctly feeble-minded should be placed in colonies where they will be made happy and as useful as possible, but kept from procreation. Those that do not show feeble-mindedness in themselves, but where the probabilities are strong that they will transmit feeble-mindedness, should be, if they are intelligent and public-spirited enough, urged never to become parents.

If we shall ever come to the point where sterilization is looked upon with favor and resorted to to help solve this problem to the fullest extent possible, it may be that such persons can be sterilized by the operation of vasectomy, and then allowed to marry and live their lives in happiness, with the certainty that there will be no issue to perpetuate the evil.

Those children who are found to be of normal ancestry are, of course, capable of growing into useful citizens, unless they have acquired a weak organism or a defective constitution in some way, so that they will always be more or less handicapped through life. Of this class there is probably no danger of procreation; that is to say, no danger that their offspring will be defective. They need a change of environment, and the conditions made such that they can make a living, and if they marry, transmit to their offspring every advantage which they themselves have.

A study of the heredity of these children will doubtless, in many cases, suggest some possible action in connection with the parents.

The following case will illustrate what we have in mind: An insane man was in a hospital for the insane where there was every justification for keeping him for life, since he was recognized as incurable. But he had his mild spells, when it was safe to allow him to go home. It had been done (in order to save expense to the state and to make room for other needy cases) until he was the father of five children, all feeble-minded or deformed. The mother, the man's wife, was feeble-minded.

At this juncture the hospital authorities made the following proposition to the man: "You are begetting defective children, who are a burden to you and the state. This cannot longer go on. We can keep you here, where you will be cared for and will be safe, or, if you will submit to the operation of vasectomy, then you can be allowed to go home." It happened that during his quiet period he was able to earn quite fair wages. The man refused to submit to the operation of vasectomy, but after a time the wife was taken into consultation, and although feeble-minded, was high enough grade to perceive the situation, and was able eventually to persuade her husband to submit. The operation was performed, and the man has been allowed to go. Now he is able to live at home and earn his wages and support his family for perhaps a half of his time. Thus everybody is happier; the state is saved the expense and trouble.

In conclusion, this great movement of reducing infant mortality is not only humanitarian, but appeals to our sense of justice and reason. But we must recognize that it entails upon society grave responsibilities. We ought to recognize these and face them. We ought to study the problem in all its bearings, and devote ourselves to its rational solution. To save these children alive, and to save them as adults from the consequences of their condition, for which they are not responsible, is a wise and humanitarian procedure. To save them from death to a life of crime, pauperism or prostitution is not humanitarianism; it is emotionalism.

THE PROPER ATTITUDE OF THE MEDICAL PROFESSION TOWARD EUGENICS

The following was submitted for discussion:

Medicine is becoming less a curative and more a preventive science. From an art of curing illness it has become a science of health. Modern medicine seeks to eradicate rather than simply palliate weakness and morbidity. Eugenics, founded upon the science of genetics, points the way to the prevention of much incapacity and disease. The coming physician will be largely an advisory functionary aiding his clientele in the conservation of personal and racial strength and health. To this end he must be well-informed in the facts and principles of heredity; and view life from the eugenic standpoint. The attainment of this condition, characterized by eugenic ideals, demands proper instruction in genetics in our medical colleges. The science of heredity should have a place among the fundamental sciences in our medical curriculum.

THE PROPER ATTITUDE OF THE CHURCH AND CHARITABLE INSTITUTIONS TOWARD EUGENICS

The chairman was unable to secure a paper on this important phase of the subject of Eugenics. The following quotation from a paper on "Selection in Marriage" ("Eugenics Review," October, 1900), by J. W. Slaughter, indicates in general the responsibility and opportunity of the church respecting the eugenics propaganda:

Marriage is peculiarly the concern of the church as one of the great sacraments . . . the psychologist might add . . . that religion has made and held its place in the world largely by reason of its relation to the reproductive life. Its control and utilization of the racial instinct in the interests of idealism has probably been an essential condition of the growth of civilization. If the church is to grasp its modern opportunity, failing which there is little need of it, clearly it must utilize its two sacraments of confirmation and marriage for their true purpose, namely in the interest of an idealism which recognizes the responsibility laid upon the present by the future. No one knowing the facts can doubt that the clergyman could be a most important agent of selection in mating.

The proper attitude of the church toward eugenics would seem to be realized for present initial purposes in the action taken by the religious authorities of the Cathedral of SS. Peter and Paul, Chicago, in refusing to perform the marriage ceremony for persons unable to secure medical certificates guaranteeing freedom from venereal taint or other genetic injury.

THE EUTHENICAL AND EUGENIC ASPECTS OF INFANT AND CHILD ORTHOGENESIS

By J. E. WALLACE WALLIN, Director Psychological Clinic, School of Education, University of Pittsburgh

The mental and physical health of children is a national asset, which the state is under obligation to preserve and develop, for, ultimately, the indefinite improvement of humanity and the cause of the young child are inseparably interwoven. The problem of infant mortality, therefore, cannot be abstracted and viewed apart, except in conception, from the larger problem of race conservation; and, in the final analysis, the problem of race conservation involves not only race preservation, but a two-fold process of human orthogenesis. First, a process of physical orthogenesis, or orthosomatics, by which I refer to any process through which malfunctioning physical organs may be made to function aright, or by means of which healthy organs may be kept at continued normal functioning, so that the physical organism may develop to its maximal potential; and, second, a process of mental orthogenesis, or orthoprenics, by which I allude to any process, mental or physical, of righting any malfunctioning mental power, so that the mind may realize its highest developmental possibilities. On such a theory the immediate purpose of a constructive community program—and only such a program will prove genuinely efficacious—of race conservation or human orthogenesis, may be stated as irreducibly three-fold:

First, *Salvation*, i. e., the salvation of every born babe, fit or unfit, from a premature grave. Perhaps it were better to follow the example of the Greeks, a nation of ancient eugenis, and allow the unfit, provided they could be infallibly diagnosed, to perish by exposing them to death perils. But this expedient can be dismissed at once, because the very thought is abhorrent to the twentieth century mind.

Second, *Improvement*, i. e., the maximal, uplift or upbuilding, bodily and mental, of every surviving babe, whether fit or unfit, so that it may reach its maximal potential of social efficiency. The duty to preserve the unfit babe, once it is born, implies the duty to provide it with the nurture and protection which will bring it to its highest estate.

Third, *Elimination*, i. e., the eradication of the social misfits, not by the impossible expedient of enforced selective euthana-

sia, chloroforming or infanticide, but by the reduction of the birth rate of the unfit stock, and the increase of the birth rate of normal, healthy babies.

If the immediate or ultimate aim of the infant mortality crusade cannot be reduced beyond the above triple minimum, it is evident that a scheme of constructive planning must include remedial, corrective and preventive work by the control of environmental and hereditary factors. While much of the conflict between the groups of environmental and hereditary infant welfare workers is due to the paucity of demonstrated facts in this field, which enables one group to attribute all or nearly all the blame for infant mortality, or for racial depopulation and degeneracy, to the environment, while the other group just as confidently holds heredity responsible;¹ yet it is probably true that the greater part of the controversy is due to one-sided views as to the basal aims to be realized, and accordingly the methods to be employed in an infant mortality crusade. On the one hand, there are some euthenists who limit the legitimate scope of the work to saving life from premature extinction, and who underestimate the value, if they do not entirely neglect, a program of subsequent follow-up diagnosis, care and training; while, on the other hand, there are those who admit that a follow-up program of orthogenic reconstruction undeniably possesses value for the individual, but who insist that it has no beneficent influence on race improvement, and that permanent race improvement can result only from eugenical breeding, whence the environment is considered to be of minor importance. The student of orthogenics, however, regards it as arbitrary, impossible of practical achievement, and fatal to the realization of the highest orthogenic results in the work of race reconstruction, to attempt to divorce the above aims, to neglect one at the expense of either of the other two, and to create a wide gulf between the euthenical and eugenical factors of control.

In the time that remains I propose to present a brief statement of the points of view, claims, evidence and the measures advocated by the two schools of infant conservationist workers, and to offer a few suggestions for a fairly comprehensive program of euthenical and eugenical work.

¹Few of the factors productive of infant mortality have been studied under thoroughly satisfactory conditions of analytical control; hence the value of many of the statistical findings is questionable. Yet these discrepant findings are constantly used in support of the most divergent claims. There is great need of genuine scientific research in this field. Too much of it is quite pseudo-scientific.

EUTHENICS

The euthenist claims that the major percentage of infant deaths is due to a maladjusted environment, or to detrimental factors which are under environmental control. He tells us:

That the vast majority (90 per cent, say some,) of babies are well born;

That adverse environmental influences are not more destructive of the biologically inapt than the biologically apt infant;

That, since the hereditary factors exert a minor influence during early life, the eugenically fit will succumb during infancy quite as readily as the eugenically unfit;

That most infants die of preventable digestive disorders caused by bad feeding, bad food, food infected particularly by means of the house fly, or by injurious drugs or beverages, and of preventable respiratory diseases, caused by bad air and dirt;

And that, in the final analysis, therefore, the causes of infant morbidity and mortality are chiefly sociological, psychological and economic, a combination of ignorance, carelessness, indifference, neglect, filth, vice and poverty.

Thus it was found in an American study of 44,226 deaths under age one, in New York, Philadelphia, Boston and Chicago that acute gastro-intestinal disorders were responsible for 28 per cent, and acute respiratory diseases for 18.5 per cent of the deaths (L. E. Holt), while the corresponding mortality figures in England and Wales during the period from 1892 to 1901 were 57.5 per cent and 25.3 per cent, respectively. Of the 49,000 infants who die under age two every year in the United States of America from cholera infantum, it is maintained that the majority are poisoned by flies.

Moreover, the euthenist contends that the real causes are often mistakenly or fraudulently reported. Thus premature births or stillbirths, which constitute about 25 per cent of the mortality figures, both in England and America, and which are

alleged to be due to impairment of biological capital or neuropathic taint, are often due to abortion produced by abortifacients or criminal operations or to infanticide or to overwork and starvation of the mothers (as they are frequently found among factory mothers). Likewise in some cases in which the cause is reported as parental alcoholism, the inebriety is only indirectly responsible for the deaths. Often the real cause is overlaying—the crushing or smothering of the infant by the narcotized parent. This circumstance seems to explain why so many infants die between Saturday night and Sunday morning—42 per cent of 461 cases reported in an English study.

With the emphasis placed on such factors as the above, it is evident that the euthenist will look to the control of environmental factors for his orthogenic measures. Among the control measures which may be mentioned are the following:

The complete extermination of the house fly;

The establishment of scientific standards of ante- and post-natal maternity and infancy nurture and care; Relieving mothers from excessive toil, hunger or emotional tension before, during and following the period of confinement by the establishment of expectant refuges, lying-in hospitals or maternity nurseries, or nursing mothers' restaurants, where wholesome food may be dispensed to the mother free of charge or at small expense, or by the legislative pensioning or endowment of motherhood, or by the issuing of a form of motherhood insurance;

The compulsory registration and periodical inspection of baby farms or foundling homes;

The licensing and supervision of foster mothers;

The establishing of medically supervised milk stations or social consultation centers, where properly modified, pasteurized or sterilized milk may be supplied, and where mothers may receive instruction and demonstrations in the scientific care of infants;

Or the establishment of community educational health centers of the Milwaukee type for the training of mothers, nurses, social workers, midwives² and doctors in infant feeding, care and hygiene, and in home and neighborhood sanitation;

² Our first municipal school for midwives was established in New York in 1911.

The establishment of public summer baby tents;

The development of measures to substitute breast feeding for bottle feeding;

The legal imposition of fines on mothers who can, but will not, nurse their sickly babies;

The substitution by legal enactment of bottle teats for bottle tubes;

The frequent systematic inspection of the mouths of young children adequately to control the "disease of the people," dental caries;

The after-care or supervision of sick children during convalescence;

The expert community supervision of infants until they statutorily come under the supervision of school boards;

The annual examination of pupils in the schools by medical and psychological inspectors, with a view to discovery and correction of physical disabilities and mental deviations or abnormalities, whether developed or latent;*

The community supervision, regulation and socialization of urban recreation;

The education of the youths of both sexes in sex hygiene;

And the education of girls and young wives for motherhood in little mothers' classes or in continuation home schools.

Concerning the desirability of instituting systematic, organized plans for putting into effect some of the above measures, there ought to be little difference of opinion. There is, at least, little reason to doubt the efficacy of many of these

*The last two measures are partly in force in New York City (and Boston), where a Division of Child Hygiene of the Department of Health has been established under municipal control, with the duty of supervising the health of children from birth to the legal working age. It is some such community organization as this for which I plead, though I prefer to have it established as a part of the public school system, with various extensions in its program of work.

measures. To cite merely four instances—by the employment of various corrective, remedial and preventive measures in New York City the infant death rate between 1881 and 1902 was reduced 62 per cent; by providing infant supervision through district nurses the mortality in New York City last year was reduced to 1.4 per cent among 16,987 supervised babies (the cost of the supervision amounted to about fifty cents per child per month—the same as in Milwaukee); by arranging to give mothers a ten-day rest period before confinement 10 per cent was added to the weight of infants in Paris; and by the simple expedient of feeding infants from the breast instead of from the bottle the mortality in various cities has been reduced in amounts varying from 50 per cent to 1,500 per cent.

Obviously, the first efforts of any organized plan of human conservation should aim so to environ every babe that it may obtain a decent fighting chance for survival beyond the cradle. By the proper control of environmental factors I believe that we can eradicate 75 per cent of infant mortality, provided the work is organized on a community basis, instead of being left to individual initiative or direction. Individual effort, because of ignorance, caprice, poverty or inefficiency, will mean desultory or worthless action, or no action at all. Nothing short of organized community action will enable us to eradicate the preventable mortality of infants. My first plea, therefore, is for the development of comprehensive plans on a community basis for *preserving and conserving the lives of infants*.

But I shall equally stress a second desideratum, namely, the organization of *community development supervision* of the child during the *entire growth period*. That there is need of such supervision in this day of disintegrating homes there can be no doubt. The problem of the individual child only begins after the battles of the first years of life have been won, and after the child has become more or less emancipated from abject dependence on his mother or caretaker. The momentous period of development and individualization which now begins is fraught with grave physical, mental and moral perils at every turn. All along the child will have to cope with insidious destructive environmental influences which tend to abort, deflect or retard his normal development. Can we safely entrust the responsibility for normal development, particularly under modern urban conditions, to the child or parent? Does not practically every child, and the majority

of parents, lack the requisite knowledge, insight and foresight? Is it not, therefore, the duty of the community or state to supplement the home care, and systematically direct the child's development, so that it may come to a true knowledge and appreciation of the ideals which the state regards as essential to its perpetuity? Clearly it is in the interest of the state that the child be so safeguarded from injury and disease, and so trained that he may reach his maximal physical, mental and moral potential, to the end that he may become a productive civic unit and not a social drag.

That the state has already assumed a paternalistic function toward her children is shown by the general establishment of compulsory systems of public day and special institutional schools, and by the more recent establishment of systems of school medical inspection. While I am of opinion that the public school systems are the logical community agency for accomplishing the orthogenic work required by the infant as well as the child, neither the public schools nor the school medical inspection systems have as yet been adequately organized to carry out a satisfactory program of orthosomatic and orthophrenic work. The public schools are making heroic attempts to adapt their machinery to the varying physical and mental needs of every pupil, but school officers and administrators have thus far failed to appreciate that the mental and educational problems connected with the *mentally* exceptional child cannot properly be handled until the direction of the work is taken out of the hands of dilettantes and jacks-of-all-trades, and placed in the hands of psycho-educational experts, who are not only skilled in the methods of psycho-clinical diagnosis, but who are also capable of functioning as consulting experts in the various branches of corrective pedagogy. Likewise the school medical inspection systems have frequently failed to deliver, partly because a considerable number of school medical inspectors have no specialized training in the diagnosis of the physical *defects* of children, and lack expert knowledge of school hygiene and sanitation, and of the preventive aspects of pupil defects and disorders; partly because the work is confined almost entirely to mere inspection and tabulation of defects instead of including corrective treatment, with the result that in many schools the percentage of pupils who actually have their handicaps removed varies from 5 to 25 per cent;⁴ and partly because the

⁴In one Chicago school the principal told me that in one of her investigations she found that only 5 per cent of the defective pupils had taken any measures to have their defects removed. It is said that in New York last year as a result of visits to the pupils' homes by inspectors and nurses, 86 per cent of the defects discovered were treated.

emphasis is placed almost entirely on the discovery and correction of existent defects, instead of on the discovery and prevention of the causes of the defects (that is, the conditions which produce adenoids, enlarged tonsils, carious teeth, etc.)

In order that the schools may serve as an organized community agency or clearing-house, for carrying out an effective program of orthogenic work for every child of school age,⁵ the following plan of work is proposed:

1. Every child on entering school should be given an expert examination for the detection of latent or manifest abnormalities or deviations of mental, moral and physical development, the mental examination to be made by a skilled clinical psychologist who is an expert in the psycho-clinical methods of examination and diagnosis, and in the differential, corrective pedagogy appertaining to various types of mental deviates;⁶ and the physical examination to be made by a physician specially trained in the detection of the diseases, the physical defects and physico-developmental abnormalities of childhood.

2. Children found in these examinations to be mentally or physically deviating should immediately receive appropriate orthogenic treatment, whether this be hygienic, corrective or preventive, or whether it be physiological, pedagogical or psychological. By thus securing diagnosis and treatment while the child's brain is plastic, we shall be able to accomplish the highest orthogenic results. We shall be able to prevent the formation of injurious pedagogical habits which result from the malfunctioning of the psycho-physical organism, and which, once established, are often hard to eradicate. To obtain maximal results the child deviate must be located early.

3. Specially trained teachers and special classes or institutions should be provided for the mental and physical deviates. School medical and dental dispensaries should be established for the free treatment of all properly certified indigent cases. It is economic suicide for the state to pay for the education of pupils who are largely uneducable because of the presence of physical handicaps. To spend large sums of money in the discovery of physical handicaps without providing the machinery

⁵ The schools may well care for the child from the time of birth, in the department of orthogenics which I propose. This would entail the employment of infant nurses, who would devote themselves to the care of babes and young children. All the records would be filed in the one central school bureau.

⁶ Neither the introspective-experimental psychologists nor the average medical practitioners have any qualifications for this type of diagnosis. See J. E. Wallace Wallin, *Clinical Psychology: What it is and What it is Not*. Science, 36: 1912.

for securing the rectification or correction of defects is also economic suicide.

4. Physical training should be systematically required of every child during his entire school course. Health education must be given the same emphasis as head education.

5. Children shown by the expert examinations and the results of special training to be incurably socially and mentally incompetent, should be segregated in colonies for permanent oversight. They should be sent to such institutions as soon as their incompetency is measurably certain, at least before the pubertal epoch. No mental incompetents should be permitted at large in society, unless the home situation is such as to insure adequate protective oversight for the child.

6. Throughout the medical and psychological work should contemplate not only the discovery and correction of defects or deviations which interfere with normal development, but also the discovery and removal of the conditions, whatever their nature, which produce physical or mental disabilities. The keynote of the whole plan must be *prevention*, rather than cure. The problem does not so much concern the excision of adenoids, or enlarged tonsils, as the removal of the conditions which cause them.

In my limited space there is not time to argue the practical efficiency of a comprehensive program of orthogenic work along the lines indicated above; but I wish briefly to refer to an experiment undertaken to discover whether or not the mental efficiency of a group of children actually could be raised by orthosomatic mouth treatment. There is great need for the scientific investigation of the mental effects of various physical disorders or defects, because the extravagant claims which are often made as to the marvellous mental improvement which follows the correction of physical defects are usually based on the casual and sympathetic observation of a few favorable cases, and not on actual performance determined by controlled objective measurements.

For some time it had been my desire to carry out a research of this kind, particularly in relation to the so-called "disease of the people," dental caries, in view of Osler's statement, "That there is not any one single thing more important in the whole range of hygiene than the hygiene of the mouth." The opportunity came during the academic year 1910-1911.

The subjects of the experiment were a squad of 27 girls and boys in Marion School, Cleveland, who were suffering from diseased conditions of the teeth and gums, and an unhygienic condition of the oral cavity. During the first few months of

the experimental year these pupils had their teeth polished and repaired, and their gums hardened. They were taught how properly to brush their teeth and gums, and how to fletcherize their food. At two sittings before treatment began they were given five psychological tests, namely: Tests of the capacity to memorize three-place digits, of the rapidity of writing free-word associates opposite supplied antecedents, of the ability to add columns of ten one-place digits, to write antonyms opposite a series of supplied words, and to draw a stroke through the letters "A" which were distributed promiscuously in successive lines of capitals. The medians of the scores in the two pretreatment series of tests were used as the normal or comparative standards of performance under the status quo. During the course of the treatment, and after its termination, these five tests, somewhat modified, but nevertheless uniform in difficulty, were given under the same experimental conditions in four successive sittings. The difference between the median scores in the first two and the median scores in the last four sittings (or the last two may be used) thus represents the index of improvement.

The detailed results of this attempt to measure under controlled objective conditions the orthophrenic effects of operative and hygienic dental treatment have been presented elsewhere.⁷ Here the briefest summary must suffice.

The amounts of the average improvements were as follows: In ability to memorize, 19 per cent; in spontaneous association, 42 per cent; in adding, 35 per cent; in associating antonyms, 129 per cent, and in the capacity to perceive, attend and react, as determined by the "A" test, 60 per cent. The median improvement for all tests thus amounts to 57 per cent, truly a significant gain. Even if it be conceded that only one-half of the gain is solely attributable to the heightened mentation resulting from the physical improvement of the pupils, the gain would still be very considerable. In corroboration of the mental improvement shown by the psychological tests may be mentioned the following facts: Most of the members of this experimental squad were pedagogically retarded in their school work from one to four years. But during the experimental year only one failed of promotion, while six completed 38 weeks of work in 24 weeks, and one boy did two years of work in one year. During the preceding year many of the pupils were quite irregular in their attend-

⁷ J. El. Wallace Wallin. *Experimental Oral Euthenics*. Dental Cosmos, 54: 1912, pp. 404 ff. and 545 ff. Also *Experimental Oral Orthogenics*. The Journal of Philosophy, Psychology and Scientific Methods, 9: 1912, 290 f.

establishment of adequate, reliable mental development scales is a large work which cannot be done within a reasonable time without liberal public or private subsidy. One of the reasons for supporting such work is the extreme feasibility of experimental work in heredo-psychology. In the psychological field it is easy to test and experiment on fit as well as unfit individuals, while in the biological field human heredity experimentation is almost impossible. This brings us to the statement of the final obstacle which confronts applied eugenics, namely:

4. *Experimental difficulties.*

If it were possible to apply the principles of experimental genetics to human breeding as those principles are now applied to the breeding of domestic animals, many of the controverted problems could be brought to a fairly expeditious experimental adjudication. Just because this seems impossible of achievement, the eugenicist propagandist must beware lest he bring disrepute upon the movement by advocating precipitate, ill-advised or premature action. There is danger that zeal may get the better part of wisdom, so that state and national laws may be passed which we shall later come to rue. In the absence of experimental demonstration, who shall say that the laws of human heredity are Mendelian, and not Galtonian, in character? What warrant is there for affirming that such socially significant complex mental traits as honesty, courage, virtue, initiative, concentration, perseverance, intelligence, judgment, reasoning, kindness and loyalty are unfit characters, and are transmissible as simple determiners? Woods affirms that they do not behave as unit characters, and are not transmissible as such. But it is just such mental characters as these that it is important to transmit, for fundamentally the difference between a social fit and misfit is a difference in mental qualities—the age of brute or muscular force has been superseded by the age of intellectual or mind force.

Since the important question, therefore, is to determine whether socially significant complex human mental traits are heritable, and since this cannot be directly determined for man by the method of experimental genetics, what is to be done? The following brief outline of both practical conservational and eugenical research work is suggested.

1. Conservational bureaus or agencies should be established on a community basis in the cities and commonwealths for the purpose of scientifically supervising the health, growth, hygiene and educational development of the child from birth

duty toward a given child may be patent certainly not later than at the dawn of adolescence. The urgent need for improved differential eugenical diagnoses will appear presently. But before proceeding further let us summarize the argument of the preceding pages:

It is the inalienable right of every child, once he has been born into the world, whether fit or unfit, to receive such parental and community care as shall remedy or prevent sickness and disease, and as shall correct or mitigate constitutional or acquired physical defects and mental and moral disabilities, to the end that he may be able to appropriate in maximal degree the instruction and training which the community so munificently bestows upon him, and to the end that he may become a fit progenitor of a race of healthy offspring.

But if this proposition is true, is it not equally true that it is the inalienable right of every child to be *well born*, to be saved from impending death, premature decrepitude or inaptitude *before*, instead of after, birth? Otherwise stated, is it not the inalienable right of the *state* to demand that all socially unfit stock must remain unborn, and to enforce that demand by all the police powers which it possesses? To these questions the eugenicist makes affirmative reply.

EUGENICS

The eugenicist affirms that human beings, like the lower animals, breed true. Like produces like, fit answereth unto fit, unfit follows unfit. Therefore, fundamentally, the problem of human orthogenics is a problem of breeding viable, untainted infants by means of eugenically fit matings.

If the euthenist has unbounded faith in the efficacy of the environment, the eugenicist has that faith in his heredity formularies which characterizes the belief in religious tenets. We are told:

That the influence of the environment is less than one-fifth, nay, less than one-tenth that of heredity (Karl Pearson);

That most infant deaths are due to lack of biological capital;

That 80 per cent of infant mortality is due to inherited syphilis alone;

That the congenitally syphilitic child is far more prone to contract the various contagious diseases than the non-syphilitic;

That constitutional inferiority always spells increased susceptibility to disease;

That more than one-third of tubercular cases in institutions come from tubercular families, which it is assumed are tubercular because of inherited tubercular diathesis;

That from 60 to 90 per cent (Tredgold) of the amented feeble-minded are hereditary cases, and that a large percentage of the insane (16 per cent, Koch), and epileptics (56 per cent, Barr and Spratling), and criminals and social offenders are the victims of heredity;

That alcohol is a veritable race poison, producing both individual and racial degeneracy;

That parental alcoholism causes atrophy or pathological changes of the reproductive mechanism;

That it is responsible for from 5 to 10 per cent of feeble-mindedness, from 10 to 20 per cent of epilepsy, 30 per cent of male insanity, and a large percentage of pedagogical backwardness in school children, for a large percentage of mortality soon after birth, for infantilism, deformities, nervous disorders, deficiencies of weight and disease in children; for the inability of mothers to nurse their offspring (Bunge found that only 2.1 per cent of daughters of confirmed drunkards were able to suckle their infants);

That female inebriety particularly is a prolific cause of the ruin of infant life, inebriety in the expectant mother being responsible for a large percentage of sterility, abortion, miscarriages, premature births and stillbirths (Latenen; only 42 per cent of 600 children of 120 female inebriates lived more than two years; 55.8 per cent lived less than two years. Lonnett; of 107 English women dying of alcoholism before 29, 8 bore no children, 99 bore 6 delicate and deformed children. But 29 vigorous children were born before the mothers became alcoholic);

That the death rate is greatest for the later pregnancies of maternal inebriates (33.7 per cent of deaths among first born; 72 per cent among the sixth to the tenth born; stillbirths among first born, 6.2 per cent; among last born, 17.2 per cent);

That increase in national sobriety has actually been attended with a decrease in infant mortality (English study; Latenen's study of 20,000 from 5,846 families indicated that the number of deaths and miscarriages decreased as the amount of alcohol consumed decreased);

But that both the number of premature and stillbirths and the number of infants who barely escape these conditions are increasing in civilized countries (Kaye,

whose finding is based on English statistics), while, likewise, our neuropathic stock is increasing faster than the general population, so that the army of dependents, defectives and delinquents threatens to engulf our civilization. One medical alarmist (Kellogg) predicts that in the year 2012 no children at all will be born;

That the preservation of unfit babies by euthenical means materially augments the increase of the degenerates;

That state systems of granting annual bonuses or allowances for each child born is particularly pernicious, because only that part of the population which is barely living above the poverty line would take advantage of them, and this would tend to augment the ranks of the lower social strata;

That material prosperity, eugenically considered, is no panacea for racial degeneracy, because it tends to produce alcoholism, premature debauchery and syphilis (as shown by a study of prosperity in the wine-producing canton of Luchon, France. The schools have received a crop of dullards seven years after good wine years);

That the potential limits of every individual's level of functioning is fairly definitely fixed by heredity; that, since the limits cannot be radically altered or lifted by nurture or training, each individual will tend to achieve his maximal success only in so far as he follows his initial aptitudes, propensities or bent, and that, therefore, the improvement of human capacity is primarily a matter of eugenical mating, and only secondarily a matter of teaching and training.

What, now, are the measures which are proposed by the eugenisit for elevating the standard of parenthood? The strictly eugenical measures have to do either with the regulation of reproduction or mating, *i. e.*, scientific breeding; or with the protection of the germ plasm from injury or deterioration (and possibly with the safeguarding of the foetus from injury, starvation or infection). The specific measures most frequently advocated are the enforced limitation of marriages to the eugenically fit, as determined by statutorily required physical and mental examinations of applicants for marriage certificates, the compulsory sterilization, under legal safeguards, of all persons legally adjudged socially incompetent, the quarantining of all persons who are carriers of infectious social diseases, and the permanent sequestration

in state colonies of all social dead-weights, including the epileptic, insane and feeble-minded, chronic inebriates, syphilitics, rapists and sexual perverts.

The student of orthogenics finds himself in sympathetic accord with the fundamental aims of the eugenic movement. In our efforts to fashion a race of human thoroughbreds nothing less than the eugenical ideal is wholly satisfying. Moreover, we have a right to judge any proposed euthenical measure in the light of the eugenical ideal. Any euthenical measure which is manifestly anti-eugenical should not be encouraged. Thus legislators may well pause before favorably considering various measures now being advocated in various civilized nations which are threatened with depopulation. The probable immediate effect of paying bounties out of the public treasury to mothers for the support of babies would be the increase of neuropathic stock, so that, ultimately, society would succumb under the ever-increasing burden. But while the eugenical conception is impregnable as an ideal, the student who is seriously interested in the cause of eugenics must recognize that there are almost insuperable difficulties in the way of the effective application of its principles, and that progress in the work will depend upon the measure in which these difficulties are successfully overcome. We may group these difficulties into four classes:

1. *Psychological and sociological difficulties.*

Effective reform of human practices is scarcely possible without the aid of the emotional forces of human nature. But man's emotional development has not kept pace with his intellectual progress. Emotionally human nature is very much the same today that it was in the days of primitive man. This is explainable on the assumption that the emotions are merely the subjective side of the instincts. Therefore, in trying to transform the sex life of the race we are obliged to deal with a set of emotions which are connected with one of the three oldest and most basal instincts of the race, namely, the sexual instinct. Now, it is at least supremely difficult, if not utterly impossible, suddenly to change instinctive racial reactions by mere instruction, demonstration, exhortation or legal enactment. An instinct has become deeply imbedded in the very fabric of the psycho-biological life of the individual as a result of age-long racial conflicts, by slow and painful processes of elimination and survival. Therefore, instincts have acquired a degree of stability, pertinacity and emotional intensity which render them almost invulnerable to merely

rational appeal, and which at least suggest that there is but one way to transform them, namely, the evolutionary method of gradual elimination and survival.

To illustrate: As a result of thousands of years of painful tribal struggle and warfare, those tribes were gradually selected for survival who abandoned the practices of consanguineous marriages and incestuous intercourse between near relatives. Through painful experience the inexorable truth was slowly forced into the consciousness of the race that such unions weakened the stamina of the tribe, and, therefore, must be rigorously interdicted. Not only did such practices arouse the disapproval, contempt and condemnation of the organization, but they gradually awakened in the individual a feeling of disgust, which in time became instinctive. The intense repugnance which the normal mind today feels toward consanguineous or incestuous intercourse rests more upon an instinctive than a rational basis. The taboo pronounced on such unions as these is founded on the deepest psychic subsoil of the racial consciousness, and has thus become incorporated in the very habitudes, customs and traditions of the race, which gives it a sanction which is more authoritative than that conferred by command or arbitrary legal enactment.

The eugenic problem would be easily solved if there were an existent racial instinct of repulsion against anti-eugenic matings—if there were a universal instinctive taboo of marriages between the biologically unfit. It is a question whether such a feeling of disgust, instinctive in its elemental intensity, can be instilled in the consciousness of lovers by mere teaching, enlightenment or prohibition. Sexual attraction is an instinctive psycho-biological phenomenon less subject to regulation by scientific or legal prescription than by blind impulse, custom, tradition or convention. Most free matings will be determined by certain intangible secondary sexual characteristics, certain fetishes peculiar to each individual, while the restricted matings will be determined by the conventional requirements of social station and wealth—unless, indeed, the eugenic creed can be transformed into a vital national religion.

Just as there are deep-seated psychological instincts or emotions which tend to frustrate the enforcement of eugenic marriages, so the racial instinct of sexual modesty will offer the hardest obstacle to the effective and universal enforcement of laws requiring health examinations before marriage licenses may legally be issued. Even if such laws were generally enacted, will not the forces of sex love frequently overleap all legal restraints and defy prisons and chains?

In the same way the chief obstacles toward the legal enforcement of the practice of vasectomizing the unfit are of a psychological nature; various sentiments and prejudices, and man's instinctive recoil against any interference with the processes or impulses of nature. If it were possible to vasectomize the whole army of misfits, and to stop entirely the manufacture of alcohol throughout the earth, the problem of eugenics would be largely solved. The chief obstacle against the total elimination of the liquor curse, again, is also psychological—the instinct of appetite and certain mental states which are induced by the consumption of narcotics.

Finally, there are the maternal instinct and filial ties to thwart any effective plan of colonizing without exception all degenerates or eugenical misfits.

It has been necessary thus to emphasize the fact that there are certain psychological forces, certain instincts, emotions, customs, conventions and folk ways which are anti-eugenic in nature, and which must be reckoned with in any well-conceived plan of eugenics. The fact that these energetically hostile forces exist in the very citadel of the social psyche makes it all the more essential that the eugenist wage a relentless campaign for the increase and dissemination of verifiable and convincing knowledge of heredity, so that eugenic truths may lay hold on the deepest feelings and sentiments of the race, and become, in fact, a national faith, tradition or religion. Then will it be possible to make eugenic enactments on the statute books genuinely effective.

2. Administrative and legal difficulties.

The adequate enforcement of eugenical measures in the present stage of civilization requires adequate governmental machinery. But, because of the facts which we have just considered, it is not probable that adequate laws can be secured, or if secured, can be enforced. Public sentiment would not support the enormous legislative levies which would be needed to colonize the vast army of misfits which abound in the body politic (already in New York from one-fifth to one-seventh of the state revenues go to the support of the institutions for defectives); and the popular outcry, based on prejudice, blind emotion, impulse or instinct, against the sterilization of at least all the misfits who remained in society would nullify the law. As a consequence, a large number of degenerates would always be found in society polluting the race stream. Compulsory physical and mental examinations of all parties to marriage contracts would subserve a useful eugenic purpose; but the laws would be powerless to prevent

a man or woman from contracting, say, contagious venereal diseases after the bill of health had been issued. After all, the problem is not so much to get proper laws enacted as to secure the public sentiment which will demand their enforcement. There is no panacea for these difficulties, except a campaign of discovery and diffusion of eugenic facts, so that the public conscience may eventually be stirred.

3. *Diagnostic difficulties.*

Our third obstacle is the lack of a reliable or infallible criterion of eugenical unfitness, or of anyone competent to infallibly pronounce on all but the obvious cases. Who is competent to decide whether or not a given individual possesses desirable or undesirable hereditary determiners? Who is able to say unequivocally that a given individual is eugenically defective, and that a given individual can only give issue to tainted progeny? Who can determine with scientific exactness that certain determiners are lacking in "X," and that the same determiners are likewise lacking in his intended consort? Who is able to determine whether a so-called normal person may not be the carrier of defective strains, just as healthy persons may be disease carriers, so that unions between such normals may be just as non-eugenical as unions of obvious degenerates? It must be confessed, I believe, that the gaps in our knowledge of the laws of human heredity from the biological side are still painfully wide. So far as concerns the psychological identification of mental defectives, our present technique enables us to locate all the extreme types, but not the border cases. One of our best all-around mental sifters is the Binet-Simon scale. But after having personally used this scale almost daily for more than two years in the study of the feeble-minded, epileptic, insane, juvenile delinquents and backward children, I am free to confess that, while the great utility of the scale cannot be questioned, it is not by any manner of means the marvellous, unerring mental X-ray machine which it is claimed to be by certain over-zealous journalistic exploiters and pseudo-scientists, even for the purpose merely of measuring the degree of mental arrest. Nevertheless, with the development of improved measuring scales of intellectual capacity, supplemented by the development of scales of personal, social, motor-industrial and pedagogical efficiency,⁸ and by developmental and heredity charts, the difficulties pertaining to the accurate mental diagnoses of cases will probably not prove insuperable. But the

⁸ Cf. J. H. Wallace Wallin, *Human Efficiency*, Pedagogical Seminary, 1911, 74-84.

establishment of adequate, reliable mental development scales is a large work which cannot be done within a reasonable time without liberal public or private subsidy. One of the reasons for supporting such work is the extreme feasibility of experimental work in heredo-psychology. In the psychological field it is easy to test and experiment on fit as well as unfit individuals, while in the biological field human heredity experimentation is almost impossible. This brings us to the statement of the final obstacle which confronts applied eugenics, namely:

4. *Experimental difficulties.*

If it were possible to apply the principles of experimental genetics to human breeding as those principles are now applied to the breeding of domestic animals, many of the controverted problems could be brought to a fairly expeditious experimental adjudication. Just because this seems impossible of achievement, the eugenist propagandist must beware lest he bring disrepute upon the movement by advocating precipitate, ill-advised or premature action. There is danger that zeal may get the better part of wisdom, so that state and national laws may be passed which we shall later come to rue. In the absence of experimental demonstration, who shall say that the laws of human heredity are Mendelian, and not Galtonian, in character? What warrant is there for affirming that such socially significant complex mental traits as honesty, courage, virtue, initiative, concentration, perseverance, intelligence, judgment, reasoning, kindness and loyalty are unfit characters, and are transmissible as simple determiners? Woods affirms that they do not behave as unit characters, and are not transmissible as such. But it is just such mental characters as these that it is important to transmit, for fundamentally the difference between a social fit and misfit is a difference in mental qualities—the age of brute or muscular force has been superseded by the age of intellectual or mind force.

Since the important question, therefore, is to determine whether socially significant complex human mental traits are heritable, and since this cannot be directly determined for man by the method of experimental genetics, what is to be done? The following brief outline of both practical conservational and eugenical research work is suggested.

1. Conservational bureaus or agencies should be established on a community basis in the cities and commonwealths for the purpose of scientifically supervising the health, growth, hygiene and educational development of the child from birth

to the period of late adolescence. A community plan of this character has already been sketched in an earlier section of this paper. I incline to the opinion that this work should be organized in connection with the public school systems, not only because this public agency is already in existence, nor because it would prevent the duplication of material plants, nor yet because the people have confidence in the work of the public school systems, but because I believe that the integral functions of the public schools is not only instruction or training, but also the conservation of the mental, moral and physical health of the children entrusted into their care.

2. One of the specific functions of this bureau, or of some other organization, should be the *biographical charting* of all babies born into the world, or, at least, of all infants of presumptively degenerate stock. The biographical charts, on which the entries should be made at about the time of birth, should contain such facts as the following: Date, order, circumstances, condition, weight and height at birth; the mental and physical condition, eating and drinking habits, overwork, and accidents of the mother before and at the time of birth; a record of the hereditary factors in the direct and indirect ancestral lines; a statement of the housing and environmental conditions. Later entries would indicate whether the child was breast or bottle fed, and for how long, and contain a record of his diseases, accidents, developmental retardations or accelerations, mental and physical peculiarities or abnormalities. This card, or a duplicate, might accompany the child to school, where it would be properly filed and supplemented by annual entries made by the teachers, the school nurse or social worker, the school psychologist and doctor. These entries would show the child's physical and mental condition, as determined by anthropometric, medical and psychological tests, and his pedagogical progress, from year to year. The data thus secured (to be made available only to the officers of instruction and diagnosis and research workers) would be of value not only for the intelligent guidance, care, development and training of the child, but they would enable us to locate and diagnose more speedily and effectively the social incompetents, and also contribute material of great value to the science of human eugenics.

3. A number of specific medical, psychological, pedagogical and anthropometric investigations, because of their practicality and the light which they will shed on various eugenical factors, should be prosecuted on a large scale. For example: What is the difference in the rate of mental and physical de-

velopment between children of alcoholized or caffeinized or narcotized parents and children of abstainers from alcohol, caffeine or tobacco? If there is a difference, does it appear during early childhood, during early adolescence or later? Do the differences eventually disappear, so that both classes of children eventually reach their normal type, just as some species of animals whose development has been artificially or experimentally retarded later recover their losses? Likewise, what is the relation between narcotized parentage and mental and physical defects, deformities and abnormalities, and arrested epiphyseal development in the offspring? To answer these questions extensive serial psychological, anthropometric, physiological and radiographic tests need to be made of children of alcoholized and non-alcoholized parentage.

A number of studies already made indicate that this is a fruitful field for protracted research. Thus in some of the special classes in London and Birmingham 40 per cent of the pupils are reported as having intemperate parents, while the corresponding percentage for pupils of the same age in the regular classes was only 6 per cent. Of like tenor is the reported fact that in some cantons in France the schools have been flooded with an army of laggards seven years after good wine years.

In an investigation carried out on the students of Murdoch Academy, in Utah, it appeared that the offspring of non-narcostimulant parents were superior to those of the stimulant parents in all of the 22 mental and physical traits examined; that as the amount of caffeine consumed daily was increased there was observed a progressive deterioration in the height, weight and bodily condition of the offspring; that the mental and physical inferiority was increased when the parents used both coffee and tea, when they used tobacco, and particularly when they used alcohol also. Seventy-nine per cent of the narcotized parents had lost one or more infants, while only 49 per cent of the abstainers had suffered such losses. It required from eight-tenths to one year longer for the narcotized progeny to graduate from the grades, and their average age was one year and seven months older in the academy.⁹

A parallel study of the effects of coffee drinking by children on their *own* development enforces a conclusion previously reached, that a sharp separation cannot be made between the eugenical and euthenical aspects of various environmental factors. Statistics were compiled for 464 children in two

⁹ Cf. J. E. Hickman, in *Journal of Philosophy, Psychology and Scientific Methods*, 1912: 9, 234.

schools for a period of one month. The drinkers averaged from one and one-half to four pounds less in weight, one-half to one inch less in height, three pounds less in strength of grip, 2.3 per cent less in conduct, so far as concerns those who drank one cup only per day, and 7.8 per cent less so far as concerns those who drank four cups or more. The rank in lessons was 2.6 per cent less, or 29.6 per cent less for those who drank four or more cups.¹⁰

By prosecuting on an adequate scale standardized researches in heredo-psychology, heredo-pedagogy and heredo-biology, analogous to those to which reference has been made above, we shall eventually secure that groundwork of facts which both eugenics and eugenics need in order that they may attain the dignity of more or less exact sciences.

¹⁰ Charles Keen Taylor, Effects of Coffee-Drinking upon Children. Psychological Clinic, 1912, 56 f.

SECTION ON PROGRESS IN PREVENTIVE WORK

Thursday, October 3, 9 A. M.

CHAIRMAN

DR. H. J. GERSTENBERGER, Cleveland

MATERNAL FEEDING

By J. P. SEDGWICK, M. D., Minneapolis

Maternal feeding should be the keystone of the propaganda for the prevention of infant mortality. It does not take a great deal of study to convince one that we fall far short of the attainable in our practice. Fortunately, the confusion of ideas is not so bad concerning breast feedings as Keller has shown it to be about artificial feeding.

Can the number of mothers who are able to nurse their infants be increased? The very interesting study of 1,501 clinic cases reported to this organization by Dr. Herman Schwarz at Baltimore showed that with careful instruction of the mothers 96 per cent of the babies were able to take the breast for one month or less, that 88 per cent were on the breast for three months, and 77 per cent for six months. Out of 1,500 women six were reported who could not nurse on account of inverted nipples, and four who seemed to have no milk at all. Jacobi's long experience has led him to conclude, as expressed in his presidential address before the American Medical Association last June, that "There is no such thing as absolute absence of milk secretion," and again, "The attentive doctor and the diligent midwife know that our women, poor and rich, suffer from no organic mammary degeneration."

If the possible degree of attainment is so high, what are we actually accomplishing? To get some statistics upon this subject, I sent out the following list of questions to physicians concerning the results obtained in the families of our own profession.

1. How many children have you had?
2. Give years of births. First child ———. Second ———. Third ———. Fourth ———.

3. How many are living?
4. If you have lost children, at what ages, and from what causes?
5. How long was each infant, at the breast wholly? (If but a few days, or a short time, state as nearly as possible how many days). First child _____ months. Second _____ months. Third _____ months.
6. What intervals were allowed between feedings?
7. At what time was the breast discontinued? First _____ months. Second _____ months. Third _____ months.
8. Give the reason for discontinuing the breast feeding in each case, if before the ninth month.
9. If the bottle was given with the breast, was it in addition to each breast feeding, or in place of certain breast feedings?
10. If mixed feeding was used, state when the bottle was begun.

But one or two physicians who answered indicated that they had not striven to procure for their own children the advantage of breast feeding. As delayed answers are still coming in, and as a limited number of figures only can be followed when read, I shall give only the most essential results here, and defer the rest until they can be shown in complete tabulation. From the physicians of Minnesota I received 892 answers. After deducting those who were unmarried, and those who were married but have no children, there were left 469 mothers for this study. Of these

17.9	{	2 or	0.4 per cent	intentionally did not nurse their children.
		75 or	16.0 per cent	did not nurse one or more children two months.
		7 or	1.5 per cent	nursed one or more children two months, but failed before three months.
82.1	{	42 or	9.0 per cent	nursed from three to six months only.
		48 or	10.2 per cent	nursed six, seven or eight months.
		295 or	62.9 per cent	nursed nine months or over.
		<hr/>		
		100.0 per cent.		

Similar results were obtained from the States of North and South Dakota, Montana and Northern Iowa. Seventy-six per

cent of the wives of the physicians answering from Wisconsin were, however, able to nurse their babies nine months or more.

These same questions were also sent to the physicians who registered for the Section on Diseases of Children at the Atlantic City, St. Louis and Los Angeles meetings. It was hoped by this means to get answers which would not be open to the objection of coming from one part of the country. One hundred and seventy-one answers were received. Thirty-nine of these physicians were not married, and after deducting those who were married but childless, 94 were left from which to draw conclusions. Of these—

21.2	{	1. The wives of none had intentionally withheld the breast.
		2. 19 mothers or 20.2 per cent had not been able to nurse one or more children two months.
		3. 1 mother or 1.0 per cent failed during the third month.
78.8	{	4. 12 mothers or 12.8 per cent nursed three, four or five months.
		5. 15 Mothers or 16.0 per cent nursed, six, seven or eight months.
		6. 47 mothers or 50.0 per cent nursed nine months or longer.
		<hr/>
.		94 100.0 per cent

If these be divided into those who failed before the end of the third month, and those who carried on the nursing longer, we get the following results:

For Minnesota:

Failed before the end of the third month.....	17.9 per cent
Succeeded longer than three months.....	82.1 per cent
<hr/>	
100.0 per cent	

For those registering for the Section on Diseases of Children:	
Failed before the end of the third month.....	21.2 per cent
Succeeded longer than three months.....	78.8 per cent
<hr/>	
100.0 per cent	

From the above it is probably safe to conclude that about 80 per cent of the wives of American physicians succeed in nursing one or more children three months or longer.

Rietschel found from the answers of 110 German pediatricists

that but 60 per cent of their wives had succeeded in nursing longer than three months.

When we compare these actual results with those accomplished by Schwarz, and with the possibility as set by Jacobi, we see that, although undoubtedly much better than the results among the families of laymen, they are far from satisfactory. We are forced to the conclusion that the number of mothers who nurse their infants can be increased.

By what means can the breast nursing be increased? This is naturally considered in two parts—first, the technique of breast feeding, and, second, the means of getting this technique employed.

Breast feeding may not succeed because the mother herself is not properly considered. She must, of course have the advantage of good nourishment and care during the whole of her pregnancy. She should have the assurance that almost every mother *can* nurse her child. She must be made to understand the importance of maternal feeding for her babe's life and growth. She must be given facts to neutralize the effect of stories told by well-meaning, but ignorant, busybodies. Shortly after the child is born she will receive circulars, very shrewdly worded, which laud the ease and safety of substitute feeding. The danger of such ideas, and interestedness of those supplying them, must be made clear to her.

Nursing must be made as little a burden to the mother as possible. We have all seen mothers who have been directed not to eat vegetables or meat, sour things or sweet things, and so on until they ask, with justice: "What is there left for me to eat?" Many a breast nursing has gone to wreck because the mother's appetite rebelled against a diet made up almost exclusively of gruels, cocoa and beer. We now know that the nursing mother can eat what is proper for any woman, with an increase of food value, and reasonable addition of fluids to cover the loss through the milk. The knowledge that pickles do not sour the milk will give many mothers an entirely new view of the subject. After such information it should be explained to her, of course that no one advises a diet largely made up of pickles for any woman.

The mother's comfort should be considered. By lengthening the interval of feeding the mother is greatly relieved. Very rarely is an interval less than three hours necessary and more often a four hour interval is best employed. We frequently hear that the baby stays at the breast from one-half to one hour and even all night. This is very trying to the mother and of no real service. Often the only way to convince the mother

of this is to determine the amount taken in fifteen or twenty minutes by weighing the baby before and after nursing, and then, by putting the infant back for five minutes, and weighing again, she can be shown that very little, if any, milk is obtained by the baby in the last five minutes. Prolonged nursing is a common cause of fissured nipples. With the longer intervals it may be necessary to give both breasts at one feeding. Longer intervals and shorter nursings will often change an unsuccessful and burdensome lactation into a real pleasure.

Night feedings should be avoided as much as possible. Frequently, what appears to be a necessity is only a habit and two or three nights' training will give rest for both mother and babe in the future. Menstruation, even if the baby is temporarily restless, is no reason for taking the child from the breast. Pregnancy is not an indication for immediate weaning.

Contagious diseases such as scarlet fever, and diphtheria, and even the usual typhoid, I am speaking from personal experience, as well as from reports of others, are not sufficient ground for weaning the young baby. There may not be enough milk for a time, and the temporary addition of some artificial mixture may be necessary, or even during a severe fastigium, it may be advisable to take the baby from the breast for a short time altogether, but with the convalescence, the reapplication of the baby to the breast will bring the milk back and the lactation will proceed normally. Open tuberculosis in the mother is a contraindication to breast feeding.

The fundamental requirement for the stimulation and continuation of the milk flow is the complete and regularly repeated evacuation of the breasts. Specific preparations for the production of the flow of milk are of value principally because of their mental effect. The sucking of a strong healthy baby stimulates the breasts to increased output. It has been recently shown that the milk supply can also be kept up by diligent, artificial evacuation of the breasts, by the pump or hand. If the mother's own babe is weak, the strong child of another woman may be put to the breast to stimulate the milk flow.

From the baby's standpoint, as well as from the mother's, it is well not to nurse it at less than three-hour intervals. A large number of babies do well on three and a half or four hour intervals. The infant's stomach, as well as that of adults, should be allowed a period of rest. Most of the so-called "colic" will disappear with longer intervals. Likewise it is best for the babe not to let it lie at one breast too long. Fifteen

or twenty minutes are almost always enough. After that length of time the child gets little or nothing.

If but one breast is taken at a feeding they should, of course, be offered alternately. If both are required each time, the nursing should be begun at one for the first feeding, and at the other for the next feeding, and so on alternately.

The nipples may be cleansed with boiled water; antiseptics are not necessary, and may be harmful. The mouth of a normal baby should not be washed, as this practice is often the means of implanting thrush or other infection, and the mechanical injury may cause Bednar's Aphthæ or simple stomatitis. Cracked nipples should receive care and protection, preferably by nipple shields, as by furnishing an opening for infection they may be the cause of inflammation of the breast proper.

If the baby does not gain in weight it is rarely, if ever, because the "breast milk does not agree with it," but usually because the quantity of milk is insufficient. When the baby is taken from the breast because the milk is supposed to be poor in quality, it is a mistake in nearly every case. Poor milk cannot be recognized by looking at a few drops or a glassful expressed from the breast. The rough method of milk analysis by hydrometer and creamometer has been the cause of many deaths through depriving babies of breast milk on the ground of incorrect determinations of the contents. Accurate analyses by competent chemists are of little clinical value, as the variations shown from the normal are so slight that they do not, in the present state of our knowledge, warrant weaning.

If the infant is well otherwise, but still does not gain at the breast, it is not because the "mother's milk does not agree with the baby," but because it does not get enough. This can be determined by weighing the baby before and after each feeding for twenty four hours. If the amount is found to be insufficient, regularly repeated complete evacuation of the breasts, patiently persisted in, will usually bring the amount up. The mother's health and nourishment should, of course, be looked into. If the quantity is found to be definitely deficient, sufficient additional or complementary feeding may be given after each nursing to nourish the child properly all through the lactation, or until the breast can supply enough. The fact must not be lost sight of, however, that the repeated complete evacuation is the essential. The mother is often led to believe that she has not enough for five nursings, and drops one breast feeding, putting in its place a bottle feeding, hoping

to have more for the nursing that she does give. This does seem to be the case at first, but the breast soon adjusts itself and there is really less milk, as she has transgressed the law of repeated, complete evacuation.

There is general agreement that weaning should be begun in the last quarter of the first year, and carried out gradually. First one breast nursing should be supplanted by an artificial feeding, and when the breasts have adjusted themselves, a second nursing should be dropped, and so on until all are given up. This should require three weeks or longer.

What are the difficulties practically experienced in carrying out the technique of nursing? Among the questions sent out to the physicians by me, was one asking the reason for discontinuing the breast feeding in each case, if done before the end of the ninth month. We have here the means of studying not one man's experience, but that of many in the field. Let us consider the various causes of failure as to the number of times they occur, their justness and remedy.

Insufficient quantity, as one would expect, is most frequently put down as the reason for discontinuing the breast feeding. This is given as the reason with 228 babies of the Minneapolis list, and 48 times in the answers from the list of the members of the Pediatric Section of the American Medical Association. Insufficient quantity is, in most cases, an indication for mixed feeding, that is, a complemental feeding *with* the breast, not replacing the breast, a supplemental feeding. Undoubtedly this number would not be so large if it were confined to those of the past decade, as Professor Schlossman stated in the discussion of Rietschel's figures. Schlossman confessed that in the case of his own family he was confident that, had the lactations fallen in the last decade, the result would have been better for the breast feedings. Included with the reason of "insufficient quantity" should probably be the answer, "No Milk," 54 times for the Minnesota list and 11 times for the American Medical Association list. It is generally considered today, that there is no such condition as complete agalactia. "No gain in weight," which appears for twenty-five babies, should probably appear with insufficient quantity as an indication for mixed feeding rather than weaning.

In the larger list the "mother's condition" was given as a reason for discontinuing, 90 times for 46 mothers and 19 times for 13 mothers in the shorter list. Little competent criticism can be made of this reason, except that it appears much oftener than in Schwarz' series, and one suspects that in some of the cases the babe's right to the breast milk and the dangers

of artificial feeding were not given sufficient consideration in the decision.

In the light of the modern understanding, the next reason, "Poor quality of the milk," which appears 83 times in the Minnesota list and 13 times in the A. M. A. list, would, with rare exceptions, be considered as no reason, but simply a misinterpretation of some illness of the baby, or trouble caused by some error in the technique of breast feeding.

"Colic," which is given as a reason five times, does not appear in the list of the babes that were fed with an interval over three hours.

Menstruation appears as a reason but five times, which is probably five times too often.

Mastitis appears but eight times, and troubles with the nipples four times. This shows how rarely it is that this, at times adequate reason for giving up the breast feeding, cannot be overcome. Other scattering reasons are given, but none of importance for the matter in hand.

The justification for taking your time with the above will, I hope, become apparent when we come to consider what is to be done to increase the number of successful lactations.

Those whom we must reach may be divided, as Southworth suggests, into—

1. The ultra social group.
2. The educated classes of means, large or small.
3. The great middle classes, including well-paid artisans.
4. The very poor and ignorant, including the foreign immigrants.

How can we get information concerning the importance and technique of breast feeding before these various groups?

Group one can undoubtedly be reached best through their medical advisers.

This is undoubtedly also true of the educated group (two). Even the students of sociology and social workers, editors, clergy, philanthropists and nurses who are doing such valiant work for the prevention of infant mortality, as well as the midwives, must draw their information upon this technical subject from the medical profession.

Class three, the bulk of the population must be reached through their medical attendants and others of class two.

And, finally, class four must depend upon the activities of class two, with the inclusion of the midwives.

It comes right back to the medical profession. It is not possible that every physician should be an expert rhinologist, dermatologist, surgeon, or even pediatricist, but it is practicable

and highly advisable that every young physician who goes out from a medical college shall have proper instruction concerning the importance and simple technique of the establishment and maintenance of lactation. It is also possible to put the practical essence of the advance made during the past decade in the knowledge of the function of lactation in the hands of every physician in the country. As a preliminary step leading toward uniformity of instructions to mothers, a concerted effort should be made by the various branches of this organization to put the official pamphlet now being prepared by our committee into the hands of every physician in the various localities.

Dr. Jacobi's advice concerning the instruction of midwives is excellent, and if carried out will accomplish much. Every midwife should have a copy of the booklet also.

The consultations and dispensaries allied with this organization are doing fine, and ever-increasing work in getting information concerning breast feeding, not only to Southworth's fourth class, but also before all the other groups.

The newspapers can, and some now do, through "Babies' Friend" departments, give great aid in distributing knowledge about breast feeding. Such departments may, however, do definite harm if not carried on under the direction, or with the advice of, competent pediatricists. I can conceive of no editor before whom this need is properly put who would not feel in sympathy with the movement.

Clergymen can, and undoubtedly will, if properly approached, insist upon the mother's first duty.

Much can be done, and a start has already been made through Dr. Putnam's committee in getting such instruction into the schools.

Premiums for nursing mothers and allied means are not practicable in this country. The keynote is dissemination of information concerning the importance, possibility and technique of breast feeding. Let us unite upon this platform.

DISCUSSION

Dr. Collins Johnston, Grand Rapids: From the standpoint of practical and immediate results along the lines for which this Association was formed, namely, the study and prevention of infant mortality, this is by far the most important paper that has been brought before us. A copy of that paper in the hands of every physician and nurse and midwife in this country would, if it were read, be attended with marked results in the reduction of infant mortality. We all know that the lack of maternal nursing is the most influential cause of disease in children under one year old. In our Grand Rapids clinic we handled

over two hundred infants last summer and in every instance which I can recall, when I asked the mother why she weaned her baby, she stated that she was advised to do so by a physician or a nurse. The medical profession and the nursing profession are largely to blame for the fact that more mothers do not nurse their infants longer than they do. I think a large number of doctors who graduated longer ago than 10 years would be benefited by many points brought out in this paper. There are but few causes for weaning a baby in the early months other than open tuberculosis and advanced heart disease.

Dr. L. Emmett Holt, New York: I believe that the mother who is able to nurse her baby and refuses to do so represents a small proportion. There are ten mothers who would like to nurse, and fail to do so, where there is one who is able to do so and voluntarily refuses. I think it is true that largely on the advice of physicians and nurses mothers have been persuaded not to nurse their babies. They have been discouraged because immediate results were not good. I do not know that I would go quite as far as Dr. Johnston and Dr. Sedgwick do and say that open tuberculosis is the only reason for weaning.

Dr. Sedgwick: I believe I did not say it was the "only," I said it was a reason.

Dr. Holt: Take a typical city mother where the baby is not quite welcome; it is constantly restless and fretful, causing the mother to lose sleep and weight. And the baby not thriving seems to some sufficient reason for not nursing. It is extremely difficult in many cases to know what to advise. The general tendency has been to give snap judgment and say that the mother's milk is hurting the baby. What the symptoms of inadequate nursing are should be determined just as carefully and just as earnestly as early symptoms of tuberculosis or typhoid fever.

Dr. T. B. Cooley, Detroit: Many cases of such bad advice are due to physicians, to whom a little more attention ought to be given. The feeding of the baby is too often left to the obstetric nurse. She starts the baby on the bottle before the doctor knows it. If the baby cries the first two days it is given some malted milk, and that's the beginning of weaning.

Miss Harriet Leet, Cleveland: You are sure it is the obstetrical nurse and not the practical nurse? My experience has been that the obstetrical nurse follows the doctor's orders absolutely.

Miss Minnie Ahrens, Chicago: My experience has been that many good obstetrical nurses are doing just what Dr. Cooley has said.

Dr. Herman Schwarz, New York: I am much pleased, although an unmarried man, that forty-eight per cent of our physicians' wives nurse their children for six months or over. That's a better record than the wives of general physicians. It is a fair comparison with the cases among the poor and foreigners and immigrants. I am sorry Dr. Sedgwick did not bring similar statistics from people in other professions of the same intelligence. The doctor has probably told his wife how much easier and safer it is to nurse the baby. I wonder, of 500 married lawyers, what percentage of nursing wives there would be. One way we can increase the number of mothers nursing is by instruction when they are in the High School. I agree with Dr. Holt that most women want to nurse their children. In New York all the young

mothers I have come in contact with are very anxious to do so. But it is interesting to note that where I can get them to nurse six and nine months I cannot get the babies to do well in that proportion.

Dr. F. W. Schlutz, Minneapolis: Studies in pediatrics in the last ten years have brought out the fact that many babies are affected shortly after birth with conditions which we now know are constitutional, which have been transmitted to the child by heredity, frequently through neurotic mothers. These babies are intolerant to the fat components in the food. This sort of baby has intolerable colics and is commonly taken off the breast. The best expedient at the present time to overcome this difficulty is found in the proper technique of allaitement mixte, adding a food of low fat mixture to limited breast feeding. This would frequently prevent taking the baby from the breast.

Dr. Philip Van Ingen, New York: In my experience it is very rare for me to see a baby in a fairly well-to-do family, who at the end of one month, is not already on a night-bottle. While this may be all right, there is danger that this night bottle will be increased to two or more. The obstetrician cannot be too careful in impressing upon his patient that it is to be one night bottle and no more.

Dr. Sedgwick: In regard to Dr. Holt's question, I said that open tuberculosis is a contraindication for feeding the baby at the breast. I think the student should be taught just as carefully as Dr. Holt suggested. But it seems to me that when a nursing baby is not doing well it is an indication for mixed food rather than for weaning. If we go as pediatricists to the obstetricians, we shall find that we can convince them that we are right in regard to the importance of breast feeding. In our State that has been done and there are no better supporters of breast feeding than the professors and instructors in the University of Minnesota in the Department of Obstetrics. The suggestion was made that this list be sent out to other professions. I have considered that, and I think it would not be best for one man to send out such a list to other professions. It could be done by the organization in an impersonal manner, and that I think would result in information of great value.

PASTEURIZATION, STERILIZATION AND BOILING OF MILK

HENRY F. HELMHOLZ, M. D., Chicago, Ill.

The question of the heating of milk has been such a live one that it seems well to take account of its advantages and of its disadvantages at this time, and formulate in some way a definite scheme for the use of milk, not only for the infant, but also for the older child and adult, who are constantly exposed to various infectious diseases when drinking fresh milk.

What is meant by pasteurization? Pasteurization is the process by which milk is heated for a short time to a temperature below the boiling point, and then rapidly cooled. The object of the process is to kill off all the harmful bacteria rather than to preserve the milk. The process was used by Pasteur between 1860-1864 in preventing diseases of wine, but it was not until 1886 that Soxhlet suggested pasteurization for milk used in feeding infants. It was largely through his efforts that it has become an almost routine procedure in the preparation of milk for infants. The relation of pasteurization to the development of high-grade milk supply is beyond the scope of this paper, and will not be discussed at all. The subject to be considered is whether the heating of milk is an aid or a hindrance in the great problem of infant mortality.

As a sub-head under pasteurization will come the boiling of milk, which is a cruder method of accomplishing with practically the same means the same end that pasteurization does, namely, the killing off of the vegetative forms of bacteria.

In the early days boiling the milk was thought to sterilize it, but we have long known that a great majority of the spores, of spore-bearing organisms are not killed off, and begin to multiply just as soon as the temperature of the milk falls below a certain point, so that unless the milk is immediately cooled to a temperature low enough to inhibit growth (about 50° F.) the bacterial count will rapidly mount up again.

When milk is sterilized, on the other hand, all forms of bacteria are killed, and if kept in an enclosed vessel, without the possibility of contamination, the milk remains in this condition for an indefinite time. By sterilizing the milk, however, we produce changes in the proteid, sugar, fat and salt of the milk, which render the milk free of bacterial life, but also changed in some ways that are supposed to be detrimental to the infant.

Sterilization can be accomplished in two ways, either by the discontinuous method of bringing the milk to the boiling point on three successive days, or by heating the milk under pressure to a temperature of 120° C. (248° F.) for fifteen minutes.

In consideration of the advantages or disadvantages of heating milk to be used for food, it is necessary to take a very broad view of the subject, and discuss at length both the benefits as well as the dangers of the process. To begin with, it must be said, however, that many of the supposed dangers of heating milk as practiced in pasteurization are not real, and are to a large extent imaginary, as shown by recent high-grade work on the bacteriology of commercially pasteurized milk. The simplest method of presentation will be to give the objections in order, and answer them in the light of recent investigations.

The first objection to be presented can readily be understood by everyone. It is the statement that pasteurization is dangerous, because it kills all the lactic acid-producing bacteria, thus preventing souring, and giving the peptonizing bacteria opportunities to produce toxins before the milk will be recognized as bad, either by taste, smell or sight.

What are the facts? The facts are that pasteurized milk heated to 140° for 20-30 minutes contains proportionately as many acid-forming bacilli as does raw milk. Not only that, but the group relationship (inert to lactic acid to peptogenic bacteria) is the same in both, and remains so when both milks are allowed to stand; the acid group, which at first is the middle group on souring, becomes predominant. The peptonizers, always the smallest group, increase proportionately for several days in both, and after that time decrease. So that as far as toxin production of the peptonizers is concerned, the same opportunities prevail in raw as in pasteurized milk of a good quality. In the inferior grades, on the other hand, the peptonizers are present in smaller numbers in the pasteurized than in the raw during the first twenty-four hours. The souring in pasteurized milk is naturally delayed, because of the presence of relatively few acid-producing bacteria; but this is true also in our very best certified milk, in which the percentage of acid-producing bacteria is also very low.

As a second objection, it is said that, although the greater number of bacteria are destroyed, the toxins and other bacterial products are not rendered harmless. There is hardly a group of toxins that is so constantly written about, without scientific foundation. With the exception of tyrotoxin found by Vaughan in cheese, not in milk, no definite toxin

has been isolated from milk. Because bacteria and their products injected into animals cause death, is no reason for believing that the same bacteria in the intestinal canal of an infant will do damage. Yet this is the foundation on which most of the work on the toxicity of the peptogenic bacteria rest. Furthermore, most of the known bacteria toxins are rendered practically inert by a temperature of 140° for thirty minutes; so should they be present, they should be destroyed by the process of pasteurization. As Rosenau says, "When we sift the matter down, we find that we know practically nothing of the true bacterial toxins concerned."

At a meeting of the International Congress for Infant Welfare last summer the question of the toxins of the milk was brought up, and, as it usually is, in a very general and indefinable way. In the discussion a number of men asked the speaker, Who had demonstrated these toxins? Needless to say they are still waiting to hear the names of the discoverers.

A third objection commonly made is that by carelessness the milk is again infected, and may be worse than before. This, however, is not an argument against pasteurization, but merely against the present method of procedure, and one that must be met, and is being met today, as will be indicated later, namely, by excluding the possibility of reinfecting the milk. As long as there is so much dirty market milk sold in our large cities, there is no need to worry about pasteurization covering it up, or encouraging dirty methods. Just as long as the community will stand for it, so long will it have dirty milk.

There is another objection that is apparently a real objection to pasteurization, viz.: That bacteria grow faster in pasteurized than in raw milk. Here, again, the excellent work of Ayres and Johnson has set right a long-used objection to pasteurization. From their studies it is evident "That bacterial increase in an efficiently pasteurized and a clean, raw milk is about the same, when the samples of milk are held under similar temperature conditions. If, however, initial counts are disregarded, and pasteurized milk of low count is compared with raw milk of high count, the ratio of increase will be much greater in the pasteurized."

To take up now the objections that can be urged against heating of milk because of its effects directly on the child. When the question of heating milk comes up at any meeting, the spectre Scurvy is sure to appear, and with one fell swoop attempts to overwhelm the assembly. It is time to get over this scare, and to realize that at best it is only a very insignificant factor when boiled milk is being discussed; and

against pasteurized milk a verdict of not proven must be returned. Even should an occasional case occur, there is practically nothing so amenable to treatment as scurvy. That boiling, or even sterilization of milk cannot be the only necessary factor in the production of scurvy is shown best by the fact that in continental countries, where practically all babies are fed on boiled milk, scurvy is, if anything, less common than it is in this country. From France, where the most extensive experiments have been carried on with sterilization of milk, Variot reports a series of 3,000 cases fed on sterilized milk without a single case of scurvy developing. Caul reports a series of 373 cases without any scurvy. Of the 379 cases of scurvy collected by the American Pediatric Society, only 107 were on a diet of sterilized milk, so that in 270 of the cases, over two-thirds, some other factor predominated. Even should we allow the argument that pasteurized milk causes scurvy, is it not much more rational to use it in spite of this fact, and give small doses of orange juice prophylactically, than to run the very much greater dangers that threaten the infant from tuberculosis, typhoid, scarlet fever, streptococcus infections, diphtheria, for the cure of which we have not found an orange juice. Thus we can retire scurvy to the background—a much exaggerated and overworked feature of the fight against pasteurization.

Rickets is another condition that has been ascribed to pasteurized milk by its enemies, but investigators have shown so conclusively that no relationship exists between boiling of milk and rickets, nor between malnutrition and boiled milk, that it seems unnecessary to go into the matter at all. In fact, it has been shown that for some substances at least the absorption is better from boiled milk than from raw.

There is, however, a danger, and a real one, of laying too much emphasis on the raw or pasteurized character of the milk. There are those who would prevent all infant mortality, if they could only feed all children of the tenements a pure, clean, raw milk. There are also those who would accomplish the same end by feeding them, one and all, pasteurized milk. In each case they do not realize that infant mortality is a very complex problem, and that either one of these things is only a small factor, and that when it comes to the feeding element of the problem, perhaps the more important thing is not so much what is fed as the way in which it is fed.

There is another group of objections that must be answered if the slate of pasteurization is to be kept clean, namely, those urged against it because of the changes it produces in the

milk. Taking them up in order: Pasteurization is supposed to so change the casein that it is more difficult for the stomach to attack. Talbot has recently shown that the so-called hard curd consists basically of casein. Recent work by Brenne-man, and others has shows that by boiling the milk this hard casein curd cannot form, but is rendered more flocculent, thus more closely resembling that of mother's milk, when precipitated in the stomach.

The fat and sugar are very little affected in pasteurization. Regarding the mineral elements, the precipitation of various salts, especially of those related to rickets, seems a very serious objection, unless one knows that this precipitation is due merely to the boiling off of the carbon dioxide, and that they rapidly go back into solution when the carbon dioxide is again taken up from the air. This can be entirely prevented by pasteurizing in sealed containers.

The ferments still remain. They are not killed at 140, but if, for the sake of argument, one were to say they were destroyed, no one has ever proven that they are of any use to the child in digesting cow's milk. To show still more clearly the uselessness of these ferments, human milk contains diastase, and cow's milk does not, and yet there is no starch present in the milk for it to act on. What, then, can be its use?

Having answered the objections to pasteurization, we can now pass to its advantages. Why should we pasteurize milk? First and foremost as regards our work, it makes possible the feeding of a great deal of milk which, without pasteurization, would be a menace in localities where it is impossible to buy a good raw milk. The objection can be made that it would be better to strive to get a good raw milk than to pasteurize the bad. The milk in many instances is so bad that it ought, under no circumstances, to be used. But used it will be until more stringent laws are enacted and enforced. Which is preferable? A milk alive with bacteria and permeated with their toxins, or a milk in which these same bacteria are dead and their toxins, if any, destroyed? So much for the milk supply as it is found in most of our large cities. What is to be the advice, provided a clean milk, inspected or certified milk, can be obtained? The recommendation will not change, but will read: Obtain the best raw milk possible, and then pasteurize, even though it be certified. The reason for doing so is the second important advantage, the most important reason for pasteurization—the one which makes pasteurization practically imperative at the present time—namely, the protection from infection with the diseases usually transmitted by milk.

This is the reason that makes it necessary to pasteurize certified milk in the same manner as is inspected or market milk. Certified milk has been shown to contain virulent tubercle bacilli. Certification can keep milk-born epidemics down to a minimum, but cannot prevent them. To cite professor Winslow writing of his investigation of a milk-born epidemic: "I am at a loss to suggest any other precautions that could have been taken to guard against infection with human germs of disease that were not taken in this instance." If, in spite of these precautions, the milk became infected, any raw milk supply at any time becomes infected. It is practically impossible to exclude mild and unrecognized cases of disease from contact with milk production. There is but one certain safeguard against such outbreaks—proper pasteurization, with regulations as to sanitary inspection and bacterial count.

A third reason is that it increases the keeping qualities of milk, which is a very important question when one considers that in the homes of the poor there is no icebox, and that the milk quite generally is kept in a jar of water or in a sheltered box. Even when certified milk is used and all precautions of preparation are taken, the milk very rapidly turns sour during the summer months unless it is heated. This has been the experience of Infant Welfare Society of Chicago.

To come back to the objection made to pasteurization—that it is of no use because milk is reinfected in the process after the heat has been applied. Although this applies to the handling of raw milk as well, this very serious objection has not received the attention that it should. No doubt it will be met in the very near future by pasteurization in the final container, as suggested.

This leads directly to the next point to be considered. Should the milk be pasteurized before or after sending it to the home? The greatest objection to pasteurization in the home is that it is practically impossible to control it. If it is difficult to control the pasteurization of milk at the different dairies supplying milk to a city, how vastly more difficult is it to control it after it has been sent out in all directions. The objection that it spoils faster than raw milk does not hold good, and by pasteurizing it immediately we reduce by 90-95 per cent the number of organisms that can multiply while the milk is in transit.

The same argument applies still more forcefully when the individual feedings are prepared in the laboratory and the finished product sent out. If the home conditions are so bad

that the milk cannot be modified in the home, then it can be taken for granted that the feedings would not be pasteurized or boiled, as the case might be.

To summarize: Pasteurization at 145° F. for 30 minutes does no harm whatsoever to the nutritional qualities of the milk. The objections to pasteurization of any force are not to the heating involved, but to carelessness in heating and in handling after pasteurization. Carelessness is just as dangerous to raw milk as to pasteurized.

The only safe and feasible method of supplying a good milk to the poor of our large cities is by centralized pasteurization in the final container.

Recommendations:

I. The method of heating to be recommended for infants' milk be it in quarts, pints or in individual feeding bottles, is pasteurization at 145° F. for thirty minutes in the final container at the earliest moment, that is, at the bottling plant or laboratory, followed by cooling at 50° F.

Whenever the heating of milk is to be done in the home a simpler procedure can be employed.

If a pasteurizer is at hand in the home, proceed as under I. It is almost as good to set the prepared feeding bottles into cold water and allow the water to boil for fifteen minutes. Then rapidly cool to 50° F.

The simplest method is to allow the milk or milk mixture to come to a boil, and then rapidly cool to 50° F.

DISCUSSION

Dr. G. Lloyd Magruder, Washington, D. C.: Dr. Helmholtz has so fully covered the subject that there is but little more to be said. The progress of the movement for the improvement of the milk supply and some recent happenings in Washington may be of interest.

My attention was first called to the importance of a wholesome milk supply by statistics from the Census of 1900. These statistics showed that Washington had a death rate of 136 per 100,000 of population from typhoid, typhoid-malarial and malarial fever. It is safe and proper to consider practically all of these cases as typhoid. This rate, allowing one death to ten cases, showed that there were nearly 4,000 cases of fever that year in Washington. From January 1st to September 30th, 1912, there were 408 cases with 58 deaths in the entire city. The facts revealed by the Census were brought to the attention of the public on February 5th, 1894. They were so startling that I brought them to the attention of the Medical Society of the District of Columbia February 7th, 1894, with the statement that if the figures were false, the Society should correct them; if true, the Society should use every effort to remove the causes.

Drs. W. W. Johnston, C. M. Hammett and myself were appointed to investigate the subject.

Contaminated milk, polluted water and defective sewage were found to be causes of the disease.

Among the recommendations of the Committee were the extension of the water and sewage systems, the removal of pumps, the filtration of the water supply and the enactment of a law that no milk should be sold in Washington without a permit from the Health officer and that no permit should be issued until there had been an inspection of the conditions at the farm, including the water supply. Congress acted upon the suggestion as to the milk supply and passed a law embodying the desired requirements, which was approved March 2nd, 1895.

Provision was made for the improvement of the water supply by securing additional facilities for sedimentation and later on, the installation of slow sand filter beds at a cost of over \$3,000,000. There was a steady diminution in infant mortality and the prevalence of typhoid fever soon after the enactment of the milk law in 1895. At the same time there was a steady improvement also in the milk supply. Contrary to the general expectation, there was no marked drop in typhoid fever after the completion of the filter beds in 1905. In fact, in June, 1906, the prevalence was greater than in June, 1905. Numerous investigations were instituted.

The Bureau of Public Health investigated the conditions prevailing in the city. It was found that the filter beds were so efficient that the Potomac water could be eliminated as a possible cause of the fever; the milk supply on the contrary was an important factor.

The average bacteria count of the many samples of milk examined was over 22,000,000 per C.C. and much of it was delivered to the consumer at a temperature near 70° F.

The Department of Agriculture examined the conditions at the dairy farms. At my suggestion, this included the bacteriological examination of the water supply of a number of dairy farms in Maryland, Virginia and the District of Columbia. These examinations disclosed that nearly 50 per cent were contaminated with the colon bacillus and 25 per cent more contained a very high number of bacteria. All of the more than 1,000 farms supplying milk to Washington were inspected and the results of the inspections were recorded upon the score cards of the Department. The average obtained was only 41 per cent out of a possible 100—not half good enough. A number of us in private life also took part in the investigations carried on at that time.

The information secured was submitted to the District Commissioners, who at the suggestion of Mr. E. Berliner and myself, called the Washington Milk Conference in the spring of 1907. All information pointed to milk as the cause of typhoid fever, as well as other diseases and the high infant mortality.

The Conference, after careful deliberation, recommended the Melvin classification of milk, viz., certified, inspected and pasteurized. The first two they considered reasonably safe, as they protected only against tuberculosis; the other much safer, as all pathogenic bacteria were killed by proper pasteurization. They recommended that this process should be conducted under official supervision. They would not tolerate the least abatement of the most rigid inspection nor of the requirements for cleanliness. In view of the recent developments as to possibilities for the contamination of milk, there is hardly a man, who took part in the Conference, who does not positively advocate the pasteurization of the entire milk supply.

Dr. Rosenau took part in this Conference and the following is the summary of his views:

ADVANTAGES

The advantage of pasteurization is that it is a cheap and effective means of preventing the transmission of infectious diseases, such as tuberculosis, typhoid fever, diphtheria, scarlet fever, etc., commonly spread by milk. It also probably has a favorable influence in preventing or ameliorating the severity of some of the intestinal disorders of children caused by impure milk.

DISADVANTAGES

Some of the objections urged against pasteurization are considered below:

1. Pasteurization promotes carelessness on the farm and dairy, etc.
This may be controlled by proper regulations, inspections, and laboratory examinations.

2. Pasteurization renders milk less digestible.

While it is generally conceded that boiled milk commonly induces constipation the majority of the evidence plainly indicates that pasteurization has little, if any, effect upon the digestibility of the milk.

3. Pasteurized milk favors the production of scurvy.

Authorities agree that the danger, if any, is slight, and, further, that it may readily be obviated.

4. By destroying the nonspore-bearing bacteria pasteurization sometimes allows toxic organisms to grow and produce serious poisons in the milk.

On the other hand, these same poisons are more frequently produced in milk that has not been pasteurized, and this danger may be obviated in pasteurized milk by cooling it quickly, keeping it cold, and shortening the time for distribution.

5. Pasteurization is inefficient as a preservative.

This is really no disadvantage, for the quicker bad milk sours the better.

6. Pasteurization injures the taste of milk.

This is not so, if properly done.

7. Pasteurization increases the cost of the milk.

True; but it is the cheapest safeguard, and the expense of pasteurization is offset by the keeping quality of the milk.

The position of the Washington Milk Conference was affirmed by the Association for the Prevention of Tuberculosis in the District of Columbia at a meeting held February 8th, 1912.

The classifications adopted for New York City and recently for Chicago are practically those recommended by this Conference. The classification adopted by the Commission appointed by the New York Milk Committee is also practically the classification of the Washington Milk Conference of 1907. The majority of this Commission were in favor of the compulsory pasteurization of the entire milk supply. They

only yielded, because the resolution authorizing the Commission called for a "unanimous report." The word "unanimous" was inserted by the framers of the resolution, Dr. Schroeder, Mr. Berliner and myself, in deference to the then antagonism of those who were still not fully informed of the advantages of proper pasteurization. These were the motives that actuated the Washington Milk Conference in 1907, not to insist upon the pasteurization of the entire milk supply.

Another additional reason for the pasteurization of the entire milk supply is the discovery by Schroeder and Cotton of the bacillus of infectious abortion in cattle, especially since there are now known means to guard against the contamination of milk by this organism. For a description of this bacillus see Circular 198, Bureau of Animal Industry, Department of Agriculture.

The result of this agitation in Washington has given a marked reduction in the death rate from typhoid fever and the diarrhoeal diseases of children under two years of age. There has been a steady improvement in the milk supply. Each year more and better milk has been pasteurized. Each year the process has been improved.

Similar results have been observed throughout the country where like conditions have prevailed as to the improvement of the milk supply and the institution of proper pasteurization. *Pari passu* there has been a steady drop in mortality. The citation of a few figures will be interesting:

Deaths from typhoid fever per 100,000 of population—

1894.....	79.0	1899.....	67.2
1904.....	43.0	1909.....	33.2
1910.....	23.2	1911.....	20.9
1912, Jan. 1st to Sept. 20th, 312 cases and 30 deaths			

Deaths from diarrhoeal diseases of children under 2 years old per 100,000 of population.

1894.....	190 deaths	1899.....	110 deaths
1904.....	103 "	1909.....	72 "
1910.....	81 "	1911.....	73 "

Total number of deaths from diarrhoeal diseases of children under 2 years of age.

From May 1st to Sept. 14th, 1909.....	245 deaths
" " " " " " 1910.....	205 "
" " " " " " 1911.....	190 "
" " " " " " 1912.....	130 "

Proper pasteurization means that milk should be raised to and held for a sufficient length of time at the temperature necessary to kill all pathogenic bacteria. Repeated laboratory investigations by men of the highest reputation and the proprietors of high grade dairy depots have demonstrated that this can be done at a temperature that in no ways interferes with either the chemical constituents or nutritive properties of milk so treated. Experience has demonstrated that this process must be conducted under intelligent official supervision. Experience has also taught that proper pasteurization—freedom from pathogenic bacteria—can be secured by both the holding process in tanks or in the final container.

In the final container with the metal cap—similar to that of the beer bottle—a greater number of bacteria of all kinds are destroyed. The so-called flash or instantaneous process should not be tolerated for an instant. It does not furnish the required security. What is said of milk, applies to cream, ice cream, butter, and other dairy products.

Dr. Beifeld, Chicago: An experiment was made in Chicago with two groups of babies. One group was fed with certified milk from one of the finest dairies in this country; the other the worst obtainable milk from the dirtiest grocery in the city. This latter milk was allowed to stand at a mean temperature in a warm room. It was then sterilized and fed to the second group of babies, not for a long time but for a sufficient time to demonstrate that the difference in effect between pure certified milk and this filthy sterilized milk was practically the same. The condition of the children who received this dirty milk which had been sterilized was a bit better than that of the others.

Prof. C.-E. A. Winslow, New York: The Association has, as it seems to me, done few things more important than to crystalize and make public the growing conviction that pasteurized milk is the only safe food for infants who are not brought up on the breast.

For some twenty years there has been a vigorous discussion between the sanitarians, who were impressed with the dangers of raw milk, and the pediatricists, who used to maintain that we must take our chances because pasteurized milk was so indigestible. Dr. Helmholz has pointed out that this idea was only a specter with no bodily substance or reality behind it. It was a pediatric ghost however, and we sanitarians had to bow before it until it was laid by the pediatricists themselves. They have disposed of it pretty thoroughly now, however, and the whole subject has never been more clearly and convincingly treated than in the paper to which we have just listened.

Dr. Helmholz has covered almost all the objections raised against pasteurization, that it does not destroy toxins, that it does destroy enzymes, that it produces a milk of poor keeping quality, that it causes scurvy and rickets,—and has shown their fallacy. On one point he did not perhaps speak quite so fully. We are often asked whether we should prefer a clean raw milk of certified grade or a dirty milk containing all manner of filth and then pasteurized. I, for one, refuse to accept this dilemma. There is absolutely no reason why you cannot keep milk clean and then pasteurize it. You can have your farm and dairy inspection and your bacteriological count and in each case you can enforce just as high a standard as the public can pay for,—and then pasteurize. You cannot enforce a certified milk standard with tuberculin testing because 15 and 20 cent milk is of no value in solving the general milk problem. But you can enforce just as high standards as are enforced for any raw milk of good grade today.

Even for the best certified milk I believe pasteurization in the home should be an invariable rule. Dr. Helmholz has quoted a remark of mine upon this point which was made in connection with an epidemic of septic sore throat in the neighborhood of Boston, in the study of which I spent the greater part of the summer of 1911. There were 1,000 cases and 50 deaths of this insidious disease caused by a clean milk not of certified grade, but very nearly so, a milk running usually under 100,000 bacteria, supervised by one of the best milk experts in the country. You cannot help these things. Care may minimize the danger, but no amount of care can ensure against infection of the cleanest milk from an unrecognized carrier case.

We must, of course, be careful not to be misled by words. As Dr. Helmholz has pointed out, pasteurization means heating to 140° or over for twenty minutes, and nothing else. The so-called flash pasteurization is not pasteurization at all, and many commercial pasteurizers

are of this type. Other commercial pasteurizers are designed on the holding system, and are thoroughly efficient; and best of all is the practice of pasteurizing in the final package which is rapidly being perfected, and is likely to be the ideal method of the future.

Dr. S. McClintock Hamill, Philadelphia: I am in favor of the pasteurization of milk, but it seems to me we lose sight of one important factor. The question is discussed from the standpoint of commercial pasteurization as it exists. Is the product of commercial pasteurization safer than clean raw milk? Dr. Winslow would indicate that pasteurized milk is safe, because he says if it is properly done he would prefer that to certified milk. I think we would all agree that pasteurization is not effective if it is done commercially, and there is no way of making it efficient with the present process. I have served on commissions in Philadelphia which studied this problem, and we expect to follow the pasteurization plan in Philadelphia. We discovered just one plant in the entire city that produced satisfactory results, so far as bacterial contents were concerned. There were many days in which they properly sterilized; at least there were many days in which they destroyed all bacteria. And there were, on the other hand, occasional days when the bacteria went up to a hundred thousand. I am in favor of pasteurization of milk properly done. I do not approve of letting the impression go abroad that pasteurized milk is pasteurized milk, and the present method of pasteurization is safe. I do not think this organization ought to go on record as advocating the process used today for the protection of milk supply. The question of reinfection of pasteurized milk is another problem. There is no way I know of in which the devices utilized at present in the protection of milk can protect it against reinfection, especially of the milk bottle. The nearest we come to it is the capping device which protects it from the hands of those who have to do with it after it is pasteurized. Whether it avails to do this work I do not know. The caps have to be placed by the hands of a person in charge of the capping machine. If you can eliminate the possibility of infection, I would like to know how it is to be done. I am in favor of pasteurization of even certified milk. I have been a strong advocate of certified milk. But in the light of recent epidemics in Boston and Baltimore, it seems to me the only safeguard we have against the possibility of transmission of disease from milk is to pasteurize it, but not by present commercial processes. Dr. Rosenau has completed a paper, in which he has demonstrated that pasteurization by the holding process at a temperature of 140° to 142° for 20 minutes, which is the common practice, does not destroy the pathogenic organism. He has put that milk through the holding process, and found for the first seven minutes the milk still contained live organisms. It is possible they may be reduced, but they are still present. Dr. Helmholtz also said that he had many times demonstrated that bacilli remained in pasteurized milk. It is manifest that anyone who will take the trouble to investigate the methods of commercial pasteurization can discover that it is absolutely impossible to protect the milk supply. And this is the standpoint from which the problem should be discussed. I do not think that the ideal pasteurization is the pasteurization by the holding process.

Prof. Winslow: We will all admit that some commercial pasteurizing plants are inefficient. On the other hand, I am sure Dr. Hamill does not mean to imply that all commercial pasteurization is neces-

sarily unsatisfactory. If he does, we can show him some plants in New York where it is done with most satisfactory results.

Dr. Herman Schwarz, New York: I have come to believe that our certified milk is more or less free from the pathogenic organisms. I give a great deal of certified milk raw. But if I am the least suspicious I pasteurize it in the home.

The Chairman: Personally I think the important point is to get a milk to the child that contains no pathogenic germs or harmful substances, and to accomplish this as economically as possible. That's the keynote of the whole thing. Theoretically, certified milk is free from tubercle bacilli only as the "Bang" system is applied. To my knowledge this system is not carried out anywhere in the United States, and if that is so, we are theoretically running the risk of giving tuberculosis to the babies, even though they are getting certified milk. All milk should be heated to the point where the pathogenic germs are made innocuous.

Dr. Helmholtz: Pasteurization does no harm. No one has yet discovered any harmful effects from it. Even in certified milk, the very best milk we can obtain, if we feed it raw we are running the risk of giving the child tuberculosis or some other infectious disease. There is just one thing to do, and that is to pasteurize milk before it is given to the child. Pasteurization has nothing to do with inspection or bacterial count. These are separate propositions and are just as important as pasteurization. We have these two means of controlling our milk supply. We know that to obtain a safe milk we must pasteurize. On the other hand, we must not forget that it is just as important to buy a good product before we start to pasteurize, as was emphasized by Professor Winslow.

SECTION ON MIDWIFERY

Friday, October 4, 11 A. M.

CHAIRMAN

MARY SHERWOOD, M. D., Baltimore

SECRETARY

JAMES LINCOLN HUNTINGTON, M. D., Boston

STATEMENT BY THE CHAIRMAN

From the time of Eve one sex has been singled out to play the most important role in the continuation of the race—the charge of the impregnated ovum, its nutrition and its delivery into the world as a completed entity. The failure to perform this high biological function may be due to various mechanical causes, or to failure in the application of the known laws of asepsis and anti-asepsis, or to failure to recognize certain general conditions which imperil the life of the mother or the child. The expectant mother has need of guidance by those who are qualified to apply the facts of science to the condition of pregnancy, she needs to be surrounded in child-birth by such conditions and such scientific care as will bring confinement to a successful issue, she needs such instruction as will enable her to give the child the right start in life. The mother needs care, therefore, before, during and after child-birth. This need is as old as the race, and will be as unceasing as the perpetuity of the race.

This is the section on Midwifery in its broad sense, not the section on Midwives. Its purpose is to determine to what extent present methods of obstetrical practice in America are a factor in preventable infant mortality and what reforms are necessary in order to insure to every infant the right to be well born.

Last year's discussion in this section showed plainly the inadequate preparation of many physicians for the practice of obstetrics. The responsibility for the deaths of infants which are due to bad obstetrics must be shared by physicians, midwives and the general public which permits present conditions to continue.

The program of today consists of a discussion of maternity hospitals and their out-patient services, obstetrical dispensaries and other agencies which in many large cities give adequate care to women in confinement. It is believed that the extension of such agencies would gradually eliminate the ignorant midwife from the practice of obstetrics. Two papers will be presented and a free discussion will follow.

Several important studies of midwifery conditions and of substitute agencies in various cities have been made during the year. The Boston Lying-In Hospital and its out-patient service has been reported by Dr. James Lincoln Huntington; Dr. Goler has presented a report of the maternity hospitals of Rochester, New York; Dr. Alice Weld Tallant, a report of the Maternity Hospital of the Women's Medical College of Pennsylvania and its out-patient service.

PRE-NATAL WORK

Boston Lying-In Hospital. Physician and nurse give instruction as to diet of mothers and preparation for maternal nursing; nurse instructs the mother as to preparation of clothing for baby and bed; monthly examinations of kidneys are made by physician (and oftener if indicated). All primiparae are examined by physicians before delivery, if normal, case is delivered by students. All house cases are delivered by a physician, the majority of out cases are delivered by students under careful supervision. A district nurse visits these cases for ten days or more after delivery. Very effective pre-natal work is done by the Committee on Infant Social Service of the Woman's Municipal League of Boston, of which Mrs. Wm. Lowell Putnam is chairman.

Philadelphia. No systematic pre-natal work is done by the maternity department of the Woman's Medical College Hospital. The visiting nurses of the division of Child Hygiene of the Bureau of Health give instruction as to diet of mothers and preparation for maternal nursing. Provision is made for relief from hard work before confinement and advice given as to arrangements for suitable care in confinement. This division was organized in July 1910 and 1500 cases were visited in 1911.

Rochester, N. Y.: In Rochester General Hospital, prospective mothers whether or not expecting to be delivered in the hospital may receive pre-natal instruction in the free and out-patient department as to diet, and the condition of the kidneys is watched by the out-patient physician. Pre-natal work is done by one nurse supplied by private philanthropy. In 32 cases, instruction was given as to diet, maternal nursing and

preparation of clothing for baby and bed. The condition of the kidneys was watched in all cases. Advice as to selection of hospital and physician was given in eighteen cases. Relief from hard work was secured in one case. Material aid was furnished in twenty-one cases. Fourteen of these patients had previously employed a midwife.

Statistics reported in these studies show an increase in the number of cases attended in the past five years; that the babies are maternally nursed in nearly all the cases attended; that the percentage of mothers and babies discharged well is very high; 487 cases in the Woman's Medical of Philadelphia without the loss of a single mother; 522 cases in Rochester with only one maternal death. The facts reported indicate that the quality of work done is far superior to the service rendered by the average midwife.

THE ELIMINATION OF THE MIDWIFE

**By CHARLES EDWARD ZIEGLER, A. M., M. D., Professor of
Obstetrics in the University of Pittsburgh**

**and
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It is most gratifying to note the interest which has been awakened in the midwife problem during the past few years. The outlook is hopeful and an attempted early solution of the question may be anticipated. The danger lies in too great haste. Either we are going to settle the matter to our credit and future welfare, or we are going to make a serious and, perhaps, irreparable mistake. My own feeling is that the great danger lies in the possibility of attempting to educate the midwife and in licensing her to practice midwifery, giving her, therefore, a legal status which later cannot perhaps be altered. If she once becomes a fixed element in our social and economic system, as she now is in the British Isles and on the Continent, we may never be able to get rid of her. I am exactly in agreement with Dr. E. P. Davis, that she is a "menace to the health of the community, an unnecessary evil and a nuisance," and I am, therefore, unalterably and uncompromisingly opposed to any plan which seeks to give her a permanent place in the practice of medicine. In no other branch of medicine do we permit ignorant, non-medical individuals to give counsel and assistance in medical matters. Midwifery is the most poorly done of all medical work, not alone because some 50 per cent of all labors are in the hands of midwives, but largely because of the low standards of midwifery existent among physicians and laity alike. And these standards cannot be raised so long as 50 per cent of the cases are in the hands of individuals with as poor preliminary education and as little medical training as have the midwives. The argument that large numbers of physicians do equally as poor obstetrics as the midwives, is entirely beside the question. We are quite ready to admit this, but to claim that for this reason we must retain the midwife, if we retain the physician, is absurd. Legally the midwife has as yet practically no status, and even if she had, there can be no reason why she should not be subject to the same laws and requirements as those governing all other individuals practicing medicine. The fact is, as we shall attempt to point out, we

can get along very nicely without the midwife, whereas all are agreed that the physician is indispensable. It thus seems that the sensible thing to do is to train the physician until he is capable of doing good obstetrics and then make it financially possible for him to do it, by eliminating the midwife and giving him such other support as may be necessary.

I am opposed to educating and licensing midwives to practice obstetrics in this country for several reasons. First, because I believe it unnecessary, since I am convinced that a plan can be evolved and practically applied which will give to every child-bearing woman in the country competent medical attendants. And, second, because I do not believe it possible to train women of the type of even the best of the midwives to practice obstetrics satisfactorily.

In this country, with its great wealth and unlimited resources, it should be, and is, unnecessary that a system should exist and be supported which seeks to give to those unable to pay for competent service, a service which is incompetent and unsafe, and administered by untutored, non-medical individuals. We are passing through a political, social and economic revolution which is certain to result in giving to the worthy poor justice in necessities of life, among which must be included competent medical service, administered by those who are trained in medicine. They will demand it and they are going to get it. This does not necessarily mean socialism but it does mean social justice. Talcott Williams, in speaking upon "Equality of Opportunity" in this country, presents some astonishing facts and figures which show that the trend of modern times is toward "equality of opportunity in all that relates to economic progress." This fact, as he points out, is apparent in the marvelous growth in savings bank deposits, industrial and regular life insurance and in the increased ownership of houses and lands by the common people, showing that the average citizen is coming nearer and nearer to the place where he is able to secure for himself the things of life which he needs. If equality of opportunity as regards medical service is ever to come in this country, it cannot come so long as we train one class of practitioners to care for those who can pay and another much inferior class to care for those who cannot. If this be true, then in the name of humanity and of justice let us not give to the midwife a permanent place in the practice of medicine when we know full well that she can never render anything but a service much inferior to that of the trained physicians of the future.

The practice of obstetrics carries with it much more than standing by while the natural forces of labor complete the

act as best they may. Obstetrics is an important branch of medicine and to practice it safely and successfully implies a knowledge of general medicine, as well as a knowledge and appreciation of the physiology and pathology—the normal and the abnormal—of the child-bearing process. The function of the physician in midwifery cases is to secure for the woman the best possible preparation for her labor, to accomplish her delivery safely and to leave her, so far as possible, in good physical condition; to prepare the mother for, and teach her the importance of nursing her baby and to do everything that is possible to bring this about. A careful physical examination of the patient in each case, a thorough knowledge of her pelvis and a careful study of her previous labors may be indispensable to the successful conduct of her approaching confinement. It will, perhaps, never be known how many thousands of babies are sacrificed annually at birth because nothing is known of certain deformities and abnormalities until labor is well advanced. Every intelligent physician knows how important is the routine examination of the urine during pregnancy, and yet, in more than 50 per cent of all the labors occurring in the country the urine is never examined until, perhaps, the woman is in convulsions. Then, too, think of the thousands of women who are annually invalidated as the result of unrepaired injuries to the birth canal and from infection, to say nothing of the many who lose their lives. Those familiar with the subject believe that this appalling condition of affairs can be very largely prevented by providing skilled medical attention before, during and after childbirth. This means that pregnancy in each case must be carefully supervised, labor scientifically conducted and the mother and baby left, so far as possible, in good physical condition, which cannot be accomplished by untrained, non-medical individuals as are the midwives.

Another very pertinent objection to the midwife is that she has charge of 50 per cent of all the obstetrical material of the country, without contributing anything to our knowledge of the subject. As we shall point out, a large percentage of the cases are indispensable to the proper training of physicians and nurses in this important branch of medicine. The whole country is indebted to Dr. J. Whitridge Williams for his studies on "Medical Education and the Midwife Problem in the United States." He has done a great and lasting service in laying bare the facts in regard to the teaching and practice of obstetrics in this country. On the other hand, Dr. Jacobi in his inaugural address, at the meeting of the Ameri-

can Medical Association at Atlantic City in June of this year, has taken in my opinion a decidedly backward step as regards both the teaching and practice of obstetrics. His recommendation that 200 schools for midwives be established in the United States is as impractical as it would be impossible of accomplishment. According to Williams, but a single medical school in the country has adequate facilities for teaching obstetrics properly to medical students. A marvelous thing will have been accomplished if, during the next fifteen or twenty years, thirty institutions similar to the Sloane Hospital, in New York City, are established to meet the requirements of the thirty-one medical schools needed in this country according to Flexner. To accomplish this would require the expenditure of some thirty millions of dollars and an annual budget of more than three millions of dollars to maintain them. So much is needed before we can hope to give to the students graduating from our medical schools adequate training in obstetrics, and before we can hope to compete with the German medical schools. If then, in addition, an attempt be made to establish the 200 schools recommended by Jacobi or 170 additional ones, using the university schools also to train midwives as in Germany, some idea may be gained of the utter foolishness of such a recommendation.

It is, at present, impossible to secure cases sufficient for the proper training of physicians in obstetrics, since 75 per cent of the material otherwise available for clinical purposes is utilized in providing a livelihood for midwives. If schools for midwives were established in all the larger cities of the country, a large number of additional cases would become necessary for training the midwives, and we should soon find ourselves in the anomalous position of favoring the elimination of physicians from the practice of obstetrics, by still further depriving them of clinical material for their training, in order to provide trained midwives to supplant them. If, moreover, the money which would be necessary for establishing and maintaining 200 schools for midwives, together with what would be necessary to supervise the midwives properly in their practice afterwards, were used to pay physicians and nurses to care for the midwife cases, sufficient money would be available, to say nothing of the five million dollars which it is estimated is collected annually by midwives in this country and which should be paid to physicians and nurses for doing the work properly.

The question in my mind is not "what shall we do with the midwife?" We are totally indifferent as to what becomes of her, as compared with the very vitally important question of

how we shall provide competent medical service for the hundreds of thousands of the very best of our women while they are fulfilling the sacred obligations of maternity. And in this we include all classes, for we realize that obstetrics is frequently as poorly done among those who are able to pay for competent services as among the poor, who are dependent upon midwives and upon public charity. The answer is to be found in providing proper training and adequate compensation for physicians and nurses, who alone should do the work.

It is generally recognized that obstetrical teaching in this country is woefully deficient. There has been a dearth of great obstetrical teachers with proper ideals and motives, but the deficiency in obstetrical institutions and in obstetrical material available for teaching purposes has been even greater. It is today absolutely impossible to provide material enough to give to medical students before graduation anything more than the merest smattering in practical obstetrics. So far as I have been able to learn, in all but a few medical schools in this country the students deliver no cases in a hospital under supervision, receive but little even in the way of demonstrations on women in labor and are sent into out-patient departments to deliver, at most, but a half-dozen cases. When we recall that abroad the midwives are required to deliver in a hospital at least twenty cases under the most careful supervision and instruction before being allowed to practice, it is evident that the training of medical students in obstetrics in this country is a farce and a disgrace to a great nation, which in other branches of medicine holds high rank. It is, then, perfectly plain that the midwife cases, in large part at least, are necessary for the proper training of medical students. If for no other reason, this one alone is sufficient to justify the elimination of a large number of midwives, since the standard of obstetrical teaching and practice can never be raised without giving better training to physicians.

On the other hand, it is equally plain that every woman has a right as a citizen and as a mother to such care during and following childbirth as shall preserve her life and health, and those also of her children. It is not difficult to prove that this cannot be accomplished by midwives, but that it can be and is being done by students of medicine under careful supervision, and by recent graduates in medicine who have been trained in well-equipped and properly conducted maternity hospitals. In the Boston Lying-in Dispensary, for example, some 2,000 consecutive cases of labor have been conducted by medical students without a single maternal death, and similar records are to be found all over the country where maternity dispensaries exist.

I believe that the midwife should be eliminated as rapidly as possible, but I do not believe that this can be accomplished at once, nor perhaps even very rapidly. Legislation will not eliminate the midwife unless hand in hand with such legislation provision is made to take her place. While a substitute is being provided she must be supervised in her work. She should, however, not be given a license but should be given a certificate, to be renewed from time to time or cancelled as deemed advisable under the circumstances. Licensing her will not add to her knowledge, and will not make her more efficient but will place upon the state permanent responsibility for her work. No attempt should be made to establish schools for midwives, since, in my opinion, they are to be endured in ever-decreasing numbers while substitutes are being created to displace them.

Our present system of caring for the so-called "charity cases" is entirely wrong, and this does not apply to midwifery cases only. Our charities are, for the most part, but poorly investigated and supervised and are inefficiently administered. Much of it is not legitimate, and the cost is unjustly distributed. Physicians have been called upon to do much more than their share. There is not the slightest reason why the physician should give his professional services without pay, as it is no more his business to administer without compensation to the dependent and sick poor than that of any other citizen. The fact that he is especially fitted to so serve them does not in any wise alter the situation. The poor when ill are the State's charges, just as much as when they must be fed, clothed and sheltered, and the State should administer to the needs in one case just as much as in the other. Until physicians are justly compensated for their services to the poor they will not receive adequate medical attention. In the long run individuals receive just about the service to which they are entitled by the compensation provided. This is just as true in medicine as in any other field of endeavor, and so far as I can see there is not the slightest reason why it should not be. Public charities of all kinds should be placed upon a strictly business basis, should be well organized, thoroughly supervised, and all the workers should be justly compensated.

The placing of the burden of medical service to the poor upon physicians, without compensation, has led them to seek in return excessive fees from those who can pay, with the result that much harm has been done to the cause of medicine. The practice of medicine has been thereby converted into a trade, and commercialism has destroyed much of its higher

and finer side, and has done untold harm in the attitude which the public should have toward the physician and the schools which educate him. And for this the leaders of the profession, the teachers of medicine, have been largely responsible. They have frequently used their professorial appointments for their personal profit, prostituting the ideals of medicine to their greed for gold, and "exploiting their patients at the expense of the entire profession." This does not apply to the so-called laboratory men, who have worked upon modest salaries, and yet have shown an unselfish devotion and enthusiasm which have astonished the whole world, and who have contributed practically the only knowledge in medicine which has been worth the while. Such men as Pasteur, Koch, Behring, Ehrlich, Flexner and a score of others are striking examples of medical men who have done a lasting service to humanity without levying a tribute upon it, and stand out in striking contrast, for example, to an equal number of American surgeons whose very work has been made possible only through that of the laboratory workers, but who, unlike them, have demanded from their patients unreasonable and dishonest fees for no other reason than that they have had the opportunity of doing so. No one questions the justice of the man of means paying in accordance with his ability toward the medical care of the dependent poor, and that on this basis the burden should be equitably distributed, but it is the business of the State to collect such moneys for the purpose, and not the business of private persons to levy tribute upon individuals of means on the plea that they are serving the poor without pay. The State should pay the physician adequately for all his services to the poor and should collect by taxes from all the people their just share of the money necessary to care for its charges.

In medical charities economy and efficiency are all important and can best be secured when such charities are utilized for teaching purposes. Medical education and medical service to the poor should go hand in hand, since patients in teaching institutions receive the best possible attention and at the least possible cost to the State. Both are matters for the State rather than for private individuals and the State should, therefore, see that each contributes to the other all that is possible. It is not generally appreciated that medical schools should be first of all educational institutions rather than medical institutions; that they should be, moreover, public service organizations and exist for the public good, as do other educational institutions, and that the teacher of medicine should be an educator in the highest sense of the term and

should stand in the closest relationship to all the problems of medical education, medical practice, eugenics and social service. He should spend his life, therefore, as a public servant, and should use his calling and the innumerable possibilities and opportunities which go with it, not to enrich himself at the expense of the profession, but to serve his generation in all that pertains to the public good. For all these reasons medical schools should be liberally supported by the State as in Germany, where medical education and medical service have reached their greatest development. The number of medical schools should be limited to the actual needs of the country, and medical teachers should be put upon liberal salaries and should be required to devote their entire time to teaching, research and the care of hospital and dispensary patients. Until this is done it will not be possible to prevent many medical teachers from seeking and obtaining professorial appointments for the purpose of advancing their own personal interests.

But you may ask what has all this to do with the subject of my paper. This much, that men and women of influence and of means will never contribute all that is necessary in money and in legislation to medical education and medical charities until they have more confidence in the ideals and motives of those who administer them. And this brings up a very important matter which cannot be neglected in such a discussion as this, namely: the administration of medical charities—hospitals and dispensaries. Each supplements the work of the other and if properly co-ordinated they cover, without conflict, the entire field of medical service to the poor. Each is, therefore, indispensable, and each has its legitimate field. In so far as they care for the State's charges, they should be supported by the State, the one just as much as the other. All patients applying for care through either should be rigidly investigated and required to pay to the extent of their ability. To this class belong all patients who are unable to pay adequate physicians' fees, whether they can pay all, a part or none of the cost to the hospital or dispensary of caring for them. And in this investigation all the facts should be taken into consideration—the size of the family, the income and cost of living, the actual legitimate earning capacity of the family; while the physical health and mental equipment must not be overlooked. If the income, whatever it be, is entirely needed for the necessities of life, it ought not to be used to pay physicians' fees. Such individuals cannot, therefore, be looked upon as of any legitimate financial value to the physician to whom their care by hospitals and dispensaries should give

no cause for offense. The manifest and professed purpose of the science and art of medicine is the prevention and cure of disease. The physician exists, therefore, for the benefit of the patient, and not the patient for the benefit of the physician; and the solution of this matter will not be reached until this fact is fully appreciated, and until it governs our attitude toward providing medical service for the dependent poor. Any system, therefore, which does not provide the most economical service consistent with essential efficiency is wrong. On the other hand, physicians should not be criticised for not giving medical service to such patients, but, on the contrary, should be paid for it, and this applies with equal force to nurses and social workers.

In Pennsylvania the hospitals and dispensaries are paid by the State to the extent of the difference between what it costs to care for their patients and the receipts secured from them and from private gifts, and this is as it should be.

Staff physicians in hospitals and dispensaries, who are given a monopoly of clinical material and, therefore, possess exceptional opportunity for the development of skill and the establishment of a reputation, should not be allowed to use their positions to gain a monopoly over private patients as well. This is the great evil of the present hospital system and can be prevented only by putting staff physicians and their assistants upon salaries, and requiring them to devote their entire time to the work of the hospital, to research and to teaching. In the larger cities where medical schools exist, all patients for whom the State is responsible, or as many thereof as may be necessary, should be cared for in the hospitals in which the staff positions are held by members of the medical faculties. In this way a tremendous amount of clinical material would become available for teaching purposes, and students and practitioners of medicine would be given an opportunity of securing any desired amount of training in chosen branches of medicine, while the patients themselves would receive the most efficient service at a minimum cost to the State. Nothing would be taken from the physicians in the way of income, their opportunities for advanced medical training would be much increased, and the medical heads of such hospitals would become invaluable public assets as teachers, investigators and consultants. The salaries of the staff physicians and of the clinical members of the medical faculties could be provided, if necessary, by fees from the necessary number of private patients.

The vast majority of private patients should, however, be cared for in private hospitals supported by private or corpor-

ate capital. No one objects to any physician making all the money to which his skill and reputation entitle him, but he has no right to do so on the investments of public moneys.

From what has been said it will appear that the elimination of the midwife is to be brought about in time through the establishment of obstetric charities consisting of maternity hospitals and maternity dispensaries, with all that goes with them in the form of social service, visiting nurses, prenatal work, relief work, etc. The hospital is to care for all who, for one reason or another, cannot secure proper attention at home, and the dispensary for those who are delivered at home. The majority of women will always be cared for at home, and it is desirable that they should be when conditions permit it. A mother with a number of children cannot usually leave them to advantage, and while it is true that physically she cannot and should not care for them, her presence in the home is necessary to order and discipline. Then, too, the cost of caring for patients in hospitals is much greater than in their own homes. Dispensary patients, moreover, are more likely to do for themselves all that they are able to do, and thus be not so entirely dependent upon help. Both the hospital and dispensary should be in charge of one and the same head in the form of a medical director and in medical centers both institutions should be a part of, or closely affiliated with a medical school.

In cities of the first and second class, especially where medical schools exist, the midwife can, in time, be entirely eliminated through the establishment and extension of obstetric charities—hospitals and dispensaries. The vast majority of cases, unable to pay physicians, can be cared for by medical students, provided the requirements for graduation are increased so as to give students the necessary training in obstetrics. My own feeling is that before going into private practice each student should be required to deliver personally not less than fifty cases under careful supervision, and should also be taught to do upon the living subject all the obstetrical operations which the granting of his diploma gives him license to perform; as I hold that it is little less than criminal to permit practitioners of medicine to jeopardize the life and health of human beings by performing upon them operations which they had not done, and perhaps had never seen performed in their student days. The average practitioner who gains his experience in obstetric operating solely upon his own responsibility rarely ever learns to do it safely, and, therefore, always remains a menace to his patients, and should he eventually become an accomplished operator, his

knowledge has been gained at the cost of much invalidism and of a number of deaths. My argument, therefore, is that if he must acquire the knowledge, it is much better that he should do so under careful supervision and instruction. The public should learn that it is the duty of every citizen, if for no other reason than that of the safety of his own family, to insist that students of medicine be not only supplied with clinical material, but that they be required to utilize it in acquiring the knowledge which is indispensable to efficiency in the practice of obstetrics. If the midwife cases and such others as are dependent upon public charity were used for teaching purposes, not only would the patients themselves receive excellent care, but sufficient clinical material would be available to give every graduate in medicine such obstetrical training as would make him a safe and efficient practitioner.

In the larger cities, therefore, maternity hospitals and maternity dispensaries, properly co-ordinated, well equipped and efficiently conducted, offer the sane and logical solution of the midwife problem. In the smaller cities and towns, the problem is somewhat more difficult, but even there it can be very largely handled by utilizing, as maternity dispensary stations, the many small hospitals which are being established so rapidly all over the country. By increasing the annual hospital budget to include such dispensary service, all patients unable to pay physicians, including also the vast majority of midwife cases, could be provided for at a very reasonable cost per patient. In this way the pupil nurses in such hospitals could be given the training in obstetrical nursing which is now so generally required for the registration of graduate nurses, while the medical service could be very largely supplied by recent graduates in medicine serving as internes in such hospitals, and thereby acquiring, under proper supervision, invaluable experience in operative obstetrics. In the rural and other districts where there are no hospitals, and where there will always exist a lack of medical practitioners, the midwife must continue her work—"doubly dangerous"—because of the scarcity of physicians—unless the State places a higher value than heretofore upon human life and health and comes to the rescue. Upon this point I am in entire agreement with Professor Pritchett, of the Carnegie Foundation, in saying that "A sanitary service, subsidized by the State, will alone render efficient relief in backward districts without demoralizing the profession."

In attempting to secure certain data with regard to midwives in several of the large cities I have been much disappointed. In Boston, for example, with 18,000 births reported

last year, it is not known how many midwives there are, nor how many cases are delivered by them, although birth registration is compulsory. As Boston has a much smaller percentage of foreign-born population than Pittsburgh, it would seem fair, on the basis of Pittsburgh statistics, to estimate that the number of cases cared for in Boston by midwives and dispensaries combined would not exceed 30 per cent. As the dispensaries care for about 19 per cent, the midwives probably deliver not over 11 per cent, or 1,980 cases.

In New York City, according to Dr. Baker, 51,996 births, or 40 per cent of the total number in 1911, were in the hands of some 1,300 midwives. In Philadelphia in 1911, the estimated number of births was 44,000, and the actual number registered was 40,066, of which latter number 21.09 per cent, or 8,450, were delivered by 194 midwives. In Baltimore in 1911, there were but 9,283 reported births, showing very incomplete returns. On the basis of United States Census Reports, the annual birth rate for Baltimore should be about 17,000, and if the midwives deliver 50 per cent of this number, they care for some 8,500 cases. The number of registered midwives in Baltimore is 162.

There were 15,422 reported births in Pittsburgh in 1911, of which 4,864, or 31.53 per cent, were delivered by 150 midwives. Of 12,839 births reported in Cleveland from July 1, 1911, to July 1, 1912, 5,127, or 40 per cent, were in the hands of 266 midwives.

In Chicago registration is not compulsory, so that complete statistics are not available. Dr. Henry G. Ohls, who has gone over the records of all births reported between January 1 and July 1, 1912, gives the first reliable birth statistics as far as they go. He finds in the total of 19,939 births reported during the six months, that 43.55 per cent, or 8,445, were in the hands of an unknown number of midwives. Dr. Ohls estimates the number of births in Chicago for 1912 to be 57,438. On the basis of his statistics 50 per cent, or 28,719, ought to be a fair estimate of the number of cases delivered by midwives.

On the basis of the number of students graduating annually (1911-1912) from the combined medical schools in Boston, New York, Philadelphia, Baltimore, Pittsburgh, Cleveland and Chicago, it is interesting to see to what extent the midwife cases in these cities could be handled by students alone.

In the data given it would appear that in some instances at least, not all of the cases credited to undergraduate students were actually delivered by them, since many of the deliveries were most probably demonstration cases, observed collectively by a number of students while the actual delivery

was being conducted by one of their number under supervision. Then, too, in certain cities large numbers of cases are delivered by graduate physicians doing post-graduate work, and their cases are also included among those credited to undergraduate students. These facts doubtless account to some extent at least, for the great difference in the number of cases reported as delivered by students in the different cities, and must be taken into consideration in interpreting the following figures. In this study it is estimated that if midwives did not exist, at least 25 per cent of the cases now under their care could afford to, and would, employ physicians:

1. Boston: Number of students, 190; cases delivered by students in out-patient departments, 3,500 (19 per cent); midwife cases, 1,980 (11 per cent). Cases credited to each student 18, and 10 additional to handle the midwife cases, or a total of 28 cases per student.

2. Philadelphia: Number of students, 437; cases delivered by students in out-patient departments, 2,566; midwife cases (less 25 per cent), 6,338. Cases credited to each student 6, and 15 additional to handle the midwife cases, or a total of 21 cases per student.

3. Baltimore: Number of students, 334; cases delivered by students in out-patient departments, 1,746; midwife cases (less 25 per cent), 6,375. Cases credited to each student 5, and 19 additional to handle the midwife cases, or a total of 24 cases per student.

4. Pittsburgh: Number of students, 66; cases delivered by students in the hospital and dispensary, 264; midwife cases (less 25 per cent), 3,648. Cases credited to each student 4, and 55 additional to care for the midwife cases, or a total of 59 cases per student.

5. Cleveland: Number of students, 66; cases delivered by students in out-patient departments, 605; midwife cases (less 25 per cent), 3,845. Cases credited to each student 9, and 58 additional to care for the midwife cases, or a total of 67 cases per student.

6. Chicago: Number of students, 608; cases delivered by students in out-patient departments, 1,927; midwife cases (less 25 per cent), 21,540. Cases credited to each student 3, and 35 additional to handle the midwife cases, or a total of 38 cases per student.

7. New York City: Number of students, 325; cases delivered by students, 3,780; midwife cases (less 25 per cent), 38,997. Cases credited to each student 12, and 120 additional to handle the midwife cases, or a total of 132 cases per student. If the students delivered 50 cases each, or a total of

16,250, there would still remain 26,527 cases to be cared for, so that in New York City at least it would seem that the midwives must do a large part of the work for some time to come, unless the City or State does a considerable part of the work through dispensaries, employing physicians and nurses on salaries. At the same time this would not be so much of an undertaking as it at first appears, since fully 50 per cent of the 38,997 midwife cases could pay to dispensaries as they now pay to midwives—\$10 each—and the remainder could pay at least \$5 each, the minimum midwife fee in New York City. If the midwives were eliminated in New York City, all their cases could be handled through maternity dispensaries for an additional expenditure of not over \$100,000 a year, provided such dispensaries received as much in fees as the midwives now do.

Your committee has asked me to tell also of the plan which we have adopted for the solution of the midwife question in Pittsburgh, and with this I shall conclude my paper.

You will perhaps best appreciate what the Pittsburgh plan is when I tell you that it is, in its development, the concrete expression of the views set forth in this paper. If the recommendations which have been made appear to you visionary and impracticable, you will want to remember that a number of them are already in operation in Pittsburgh, and are working out beautifully, and that we fully expect to carry out the entire scheme within the next half dozen years.

Some three and a half millions of dollars are available for the building, equipment and endowment of a woman's hospital, to be built in Pittsburg during the coming year; and \$50,000 have already been subscribed, from an entirely different source, for the maintenance of a maternity dispensary which was opened some six months ago.

The hospital, which is the first of its kind to be established in this country, has been modeled largely after the well-known "Frauenkliniks" of Germany, and will, therefore, care for both obstetrical and gynecological cases. Abraham Flexner, in his "Medical Education in Europe," expresses exactly the point of view which we have taken for years, and which now finds its expression in the new Magee Hospital. He says, in speaking of the German clinics for women, that "the women's clinic combines obstetrical and gynecological wards. Separation into two specialties tends to make a midwife of the obstetrician and an abdominal surgeon of the gynecologist, to the neglect of the fundamental pathological and physiological problems in both cases. Consolidation avoids the necessity of drawing arbitrary lines by way of

making two specialties where nature has made but one; for obstetrics and gynecology have a single physiological and anatomical point of departure, namely, the child-bearing function."

The new hospital will have accommodations for 125 adult patients in the wards and 25 private rooms. It is peculiarly well adapted for teaching purposes, having an operating and teaching amphitheater; a number of examining rooms, delivery rooms and recovery rooms; research laboratories, a medical library, museum and the necessary offices and other rooms for the medical director and his assistants. There are also rooms for photography, X-ray and hydro-therapeutic departments, and an isolation department for infected cases, with the necessary operating and sterilizing rooms. In the private pavilion there is a private gynecological operating room, several private delivery and recovery rooms, a cystoscopy room, etc. The institution will be erected in the center of a ten-acre plot of ground, and will be surrounded by a number of separated and isolated gardens for private patients, ward patients, nurses, physicians, etc.

The medical director of the hospital is also Professor of Obstetrics in the University of Pittsburgh. He resides with his family on the hospital grounds, is paid a salary sufficiently large to make him independent of private practice, and to enable him to devote all his time to the work of the hospital, to research and teaching. All fees received from private patients go into the hospital treasury.

The Pittsburgh Maternity Dispensary, within two blocks of the Magee Hospital, is closely affiliated with the hospital, having the same directing head. It is located in two large houses of twelve rooms each, and having dormitory accommodations for a dozen physicians and students, as many nurses and social workers, in addition to the dispensary rooms proper. The present staff of workers consists of a social worker, two graduate physicians and three graduate nurses, all on salaries and devoting their entire time to the work of the dispensary; also a number of medical students. The number of workers will be increased as the growth of the work demands it.

The present hospital, housed in temporary quarters, will care for some 350 cases of labor during the present year, and we expect to care for as many more cases in the dispensary during the first year of its existence, or a total of 700 cases, all available for teaching purposes. Our senior medical students, 45 in number, will, during the present year, witness at least fifteen deliveries each, of which number each student

will personally deliver six cases under constant supervision and instruction, three in the hospital and three in the dispensary.

The work in Pittsburgh is young, but the outlook is most promising, and we feel that we have in the combination of hospital and dispensary, both teaching institutions, the solution of the midwife problem. And what can be done in Pittsburgh can be done in every other large city in the country. The creation of obstetric charities, such as I have attempted to describe, and the education of the people will in time make the midwife unnecessary and her elimination inevitable.

DOES THE AVERAGE MIDWIFE MEET THE REQUIREMENTS OF A PATIENT IN CONFINEMENT?

A Comparison Between the Facilities Afforded by Lying-In Charities and the Average Midwife

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The specific work accomplished by the sessions of the section on midwifery of this Association at the meeting held in Chicago last year, and the attention which has been attracted to this subject by editorial and other contributions in our medical press, apparently make this paper appear merely as a repetition of what has gone before. However, an excuse for the same may be sought in the circumstance that it is only by keeping the subject alive through the medium of frequent repetition and constant agitation that the desired result may finally be accomplished.

In considering the so-called midwife question it must be assumed that the proper care of a woman during pregnancy, labor and the puerperium is of signal importance, not only to her as an individual, but to the State. The Constitution guarantees to the inhabitants of the United States a degree of political and religious freedom which is scarcely equalled anywhere. Our Federal Government, to some extent, agrees that our animal population shall be kept free from disease for the purpose of insuring certain economic benefits to the country. Without extending the paternalistic ideas of government which certain of our politicians have favored, is it not reasonable to insist that our human population be accorded an equal value as an economic factor? Unfortunately, whenever this is attempted the cry of interference with personal liberty is brought to bear on the subject, and that is usually the end of the matter. Nevertheless a mother must be looked upon as a unit on whom depends, directly and indirectly, a great deal of the welfare of a considerable portion of our population. Her health must be conserved, that she may be able to look after her children already born, or those in the process of development. If mothers can be kept in good health, their condition must be regarded in the nature of an asset for the State, and, from the economic standpoint, such good health will prove an important factor in eliminating a progeny which, in whole or in part, will come under the care of the community at some future time in hospitals, or-

phanages or insane asylums. The question remains, How shall we guarantee such attention to a mother during that most important period in her life—pregnancy? Shall it be through the medium of women usually ignorant, insufficiently and poorly educated, and entirely unaware or careless of their responsibilities in such matters, or shall it be by the aid of the scientifically administered care of trained physicians and nurses? Regarded from this standpoint, it would appear as if there was no question about which course we ought to pursue.

The question as to whether the midwife or the doctor shall care for the poorer classes of the population is one of great importance, because it is only in relation to this class that the midwife will ever be considered in the United States. We are guided more or less in our attitude towards this problem by the experience of foreign countries, where the midwife has become an institution apparently difficult to eradicate, largely for personal and economic reasons. The efforts which these countries have made to regulate the matter shows quite distinctly that even where such a system is apparently successful many factors enter which require study and attention. Germany must be regarded as the nation which has done more to regulate the midwife than any other, yet Germans are evidently not yet satisfied with the result, for we hear of constant endeavors to improve the position of the midwife by regulation, by extension courses, and by so-called post-graduate work. It must not be forgotten that the women who enter this profession in Germany are very much superior to the women with whom, as a class, we are dealing in this country, and the more paternalistic form of government and respect for the law prevalent in Germany, makes it a very much simpler matter to institute a proper control over midwives than we can ever hope to accomplish. The shortcomings of even this very much superior system are well shown by the discussions found in various German periodicals, among which the following pertinent example may be quoted from a paper by Weisswange (*Zentralbl. f. Gynäk.*, July 20, 1912.) "The question remains, Is the present method of rendering help at childbirth the most advantageous? I question it. All statistics which have been compiled since the discovery of puerperal fever point over and over again to the fact that we, in fighting the disease, have not reached the desired goal, as in other illnesses resulting from infected wounds. The midwife system occupies an important place. While we instruct our nurses so excellently in asepsis and antisepsis, and require them to train for at least one year before we give

them recognition and permit them to call themselves 'sisters,' and while, for the most part, we require a considerably longer training before we permit them to assist us in operations, yet even in Germany the midwife is trained for a period of only from six to nine months, and then is allowed to officiate at childbirth." The same writer states further that all proposed reforms, whether they include the restriction of internal examination, the use of rubber gloves, etc., will not help us in our aim to avoid puerperal fever if we do not take hold of the reform in the right place, namely, the essential improvement of the midwife class and the midwife's training. For this purpose at least one year of thorough training should be required, and only those women selected who have the mental fitness to appreciate the knowledge of proper sepsis and anti-sepsis. Indeed, he believes that a higher grade of mentality should be required of the midwife than is required of the hospital nurses, for the latter always live in this atmosphere and are under constant control, while the midwives are more or less independent of outside influences. He goes on to show, moreover, how a lack of preliminary training fails to make a candidate for a license in midwifery properly appreciate the responsibility under which she is placed. This is but one example among numerous others met with in European periodical literature, and if the faults of the system are evident under these more favorable circumstances, what can we expect in large cities like New York and Chicago, where the midwives are absolutely or practically without any control? Of course, it is acknowledged that the municipal regulations cover, or are supposed to cover, this particular field of medical practice, and yet anyone connected with our larger maternity hospitals who has the opportunity of seeing the results of the midwives' work, and who comes in contact with their life, can bear testimony to the fact that the medical inspection by the Board of Health, in New York at least, falls short of the desired ends. Moreover, there are hundreds, and, I might say, thousands of women extending their aid in childbirth who have had absolutely no training whatever, except that gained from a personal experience in their own labors and the observation of this process in their neighbors. They are as innocent of any knowledge of asepsis or the science of obstetrics as a trench-digging laborer. This class of women is absolutely without control, as they are not licensed, and, as far as I know, not inspected. Another unfortunate effect in connection with their work is that the women are rendered careless of the possibility of complications, and very often it

is only at a period too late for assistance that the latter is applied for.

The question remains, How can we overcome the difficulties attached to the problem of caring for poor women in pregnancy? What economic conditions make it necessary for us to rely on this sort of assistance, simply because it is cheap? Is not the value of a healthy mother to the community greater than that of one who is crippled by lack of care during childbirth? Would it not be a paying investment for the municipality to provide proper care for these indigent women? The question then arises, In the event of this being possible, by what means shall better care in pregnancy be extended to the poorer classes? There are apparently only two methods—suitably trained midwives or extended public lying-in charities. The attempt has been made to solve the so-called midwife question in New York by providing a six months' course of instruction at one of our large public hospitals, three months of which are spent by the candidate in the wards, and the other three months in the tenements. The preliminary requirements exacted by the candidate include a physician's certificate of good health and of recent vaccination. After being vouched for by two friends, the candidate is accepted for a probationary period of two weeks or longer, depending upon her ability and general fitness. Very little attention seems to be paid to previous education, yet the outline of the course of instruction would appear to require somewhat more than average mentality. The school referred to is still in its swaddling clothes, and thus far but very few women have availed themselves of the opportunities offered, only eighteen having been graduated thus far. In view of the needs of the community, can such a school ever hope to supply a sufficient number of what must finally be admitted to be insufficiently trained women, to do the necessary work? A six months' course of instruction is insufficient, even for those of a higher mentality than the candidates who usually present themselves, and if we are going to leave this matter to women who are specially trained, then at least we ought to insist upon it that their period of instruction be increased, and means offered to them to enable them to keep up with the advances in obstetrics. The writer, in view of the fees which ordinary midwives can command, is very skeptical that this ever will be accomplished. However, with the certificate of a school to back them, such women are in a position to play on the sensibilities of their ignorant following, and exact fees as large as those accorded to the ordinary practitioner of medicine. Moreover, the opportunities to increase their in-

come by the practice of criminal operations will be extended even beyond what now, unfortunately, must be evident to everyone who comes in contact with the results of their work. I acknowledge that it may be a difficult matter to get rid of the midwife system as at present constituted, unless we can provide a class of women who are sufficiently trained to meet all requirements. But we have had other problems in medicine to deal with that have presented objections of equal, if not greater, weight, and yet the profession has congratulated itself quite frequently on the fact that it has overcome them. Were it not for the insistence on certain medical measures could we ever have overcome the ravages of smallpox and other infectious diseases? We insist on caring for our school children by regular inspection of their noses, throats, glands, joints, hair, skin and other portions of their anatomy, as a protection, not only to themselves, but to the remainder of the community. If abnormalities are found, we have devised means to insist on their removal, either by the family physician or the public clinic. Is it not of equal importance to protect a pregnant woman against the inroads not only of disease, but of improper care during labor, because it is directly here that outside interference, if improperly conducted, will produce the most harmful consequences and results. If we have succeeded in insisting that proper medical care be accorded in other conditions, why cannot we extend this supervision to those poor women who resort to an inferior type of care simply from their ignorance and prejudice?

In order to demonstrate what can be done for these women, I will contrast a typical case of confinement in the tenements attended by an ordinary midwife, with that attended by the staff of a large lying-in charity. The patient who intends to resort to a midwife's aid in her confinement rarely applies until the labor pains have come on. The woman who is then engaged to attend her is called from a nearby tenement, where she is probably taken from her work in caring for a large family that may include a child sick with some form of contagious disease. She usually goes to the scene of the labor in the ordinary dirty clothes that she has been wearing while doing her household work, taking with her a satchel containing a handful of absorbent cotton and a bottle of bichloride tablets or carbolic acid, with a few strings of soiled tape for tying off the cord. The satchel and its contents will not bear close inspection, and when carried by the so-called "professional midwife" is usually done for effect rather than for actual use. In a great many cases, however, among the Russian Jews we find these women without even this small insignia of their

trade. The patient is asked about her pains, and a vaginal examination may or may not be made, this depending on in how much of a hurry to get back home the midwife happens to be. Abdominal examinations to diagnose position and auscultation of the foetal heart sounds are practically never attempted. If the pains are strong, the woman usually stays on the case and busies herself about the house, doing cleaning or other manual work. If the labor does not come off soon, she will probably make a vaginal examination, usually without washing her hands, and if the cervix is sufficiently dilated, she will often rupture the membranes. The one favorable feature about the work of the midwives is the fact that they do not make many vaginal examinations, and the patient is left to her own resources to expel the child. If the midwife believes the case to be normal, she usually sits and waits for the child to be born, after which the cord is tied with the aforesaid piece of dirty string or tape, and the delivery of the placenta awaited. A knowledge of postpartum hemorrhage and its treatment is usually outside the scope of these women, and they know nothing about uterine contractions or the necessity of maintaining them after the placenta is delivered. In many instances I have known them to deliver the afterbirth by traction on the cord, with the possibility of producing an acute inversion of the uterus. Any methods of protecting the perineum from laceration, or the suture of such tears, is entirely beyond them. In case an abnormality occurs, such as a breech or a transverse, they know enough to make a diagnosis by exclusion, and send for a doctor or to one of the charitable maternity hospitals for assistance. Cases are not unknown in our service where efforts at breech extraction have been made with dire results as regards the delivery of the after-coming head. In most instances the midwife seems to think that her labors are completed after the child is born, and if she is of the so-called professional or licensed type, she leaves the woman, to return every other day for a week or more until the patient is up and about. Most of the women whom we meet with in our work among the Jews in New York, however, are not of this class. They are simply women who have taken up this work as a means of gaining an additional livelihood, or are widows, or may have been deserted by their husbands. Very often they assume the role of nurses and scrubwomen, and remain in the house with the patient, doing the ordinary work and paying comparatively little attention to the mother or the baby. Summed up in a few words, it may be said that the care extended by either of these two classes of women during labor

and the puerperium scarcely meets with the requirements of modern obstetric practice. Contrast this with the care offered by the staff of a large maternity institution, such as the Lying-in Hospital of New York. Our service is divided into an indoor and an outdoor department, and as the outdoor comes into closer relation with the problem here under discussion, a brief general description may serve to show the contrast between the care extended by the midwife and that of a well-equipped hospital.

The staff of the outdoor department consists of two attending surgeons, one in charge of the labors, and the other in charge of the postpartum cases. Under these there is an organization which includes a resident house surgeon and ten staff doctors. This is supplemented by a corps of nurses who act as assistants in various capacities. Patients are urged to apply for admission to the service a month or two before the expected date of confinement, when they are examined in a special antepartum clinic, which meets every day except Sunday. A history is taken, and a careful external and internal examination is made, including pelvimetry. A specimen of urine is also examined, and the patient receives a card directing her to apply for treatment as soon as her pains begin. In order to extend the care given to the ante-partum women, it is also our intention to provide a pregnancy clinic, which shall be regularly visited by the applicants, and all subsequent abnormalities noted and taken care of. When a message comes in from a woman that she is in labor, a staff doctor is immediately sent to the case with a bag containing the ordinary paraphernalia necessary for delivery. As soon as the doctor arrives he makes a complete examination of the patient, and enters the data on a specially printed slip, which is at once dispatched to the hospital by a messenger from the family, and placed on file there for the inspection of the resident house surgeon. The clerks in the office are instructed to call the attention of the house surgeon to any abnormalities that may be entered on the report. These reports are sent in to the hospital every two hours, and the case is, therefore, under constant observation and control. Should any abnormality arise, the attending surgeon on duty is immediately notified by telephone by the house surgeon, who is then directed as to the manner of procedure. The aim has always been to have an attending surgeon present at every operative delivery, and this is quite faithfully carried out, as shown by the hospital records. In case operative interference is necessary, one or more of the staff, together with a nurse, proceed to the case,

taking all the sterilized dressings and instruments required. It is unnecessary to go into further details regarding the various procedures and methods employed, because this would be foreign to the paper, but attention may be called to the rules which are distributed in printed form to the members of the house staff, and further elaborated upon by a monthly lecture by one of the attending surgeons, in which the outline of the procedure insisted upon by the hospital in the conduct of labor cases is fully described. Especial attention is called to the method of hand disinfection and cleansing of the patient before any vaginal examination is undertaken. We do not supply rubber gloves for a number of reasons; they are expensive and easily torn unless they can be applied dry, and their use is apt to lead the wearer to depend for his aseptic technic on the glove rather than on careful sterilization of the hands. We try to impress on the members of the staff the absolute necessity for keeping clean and observing every detail in connection with the case, impressing them also with the fact that the conduct of a normal labor and the avoidance of complications is one of the most important and essential parts of their training. As an instance of the fact that these instructions fall on fertile soil in almost every case, attention may be called to the very low morbidity rate in connection with this outdoor service, which for a long period of years has rarely exceeded two per cent. We include here temperatures produced by other conditions aside from infections through the genital tract, and, notwithstanding this, the morbidity rate will bear favorable comparison with that of any institutional indoor work, and is very much better than that obtained in ordinary private practice by physicians. No comparison can, of course, be made with that attending the practice of midwives, as these facts are not recorded unless they come under the notice of the hospital.

Labor is regarded quite generally as a physiological process. For this reason many will claim that too much attention is extended to women at this time. The fact remains, however, that environment has tended to interpose many complications to this supposed physiological process, as an instance of which I may state that operative deliveries in our series of cases amount to at least ten per cent. Complications necessitating operative delivery cannot usually be avoided, and the good results attending our own series of such cases show how necessary is skillful supervision and attendance.

For lack of time I have refrained from touching on a number of points which would be of great interest in this connec-

tion. The distribution of the cases confined by the hospital staff during a single year is graphically shown in a map exhibited at the last meeting of the A. M. A. at Atlantic City and published elsewhere (*Bulletin of the Lying-in Hospital*, Vol. VIII, No. 4). With the exception of those parts of the city covered by business buildings and the better classes of residences, the lower portion of New York City is occupied by the ordinary cheap tenement house, a form of dwelling which has resulted from certain economic and geographic conditions. This type is most unfortunate in its effects on the tenants, who are thus compelled to live in close contact. Our work extends mainly along the lower East Side, in the district largely inhabited by the Jews of Russian or Austrian extraction. These women all have large families, and although the tenement-house conditions are gradually improving, they are far from being what they ought to be, and the conditions under which these children are brought into the world are in many instances extremely sad. In this same district there are, of course, numerous midwives of every kind, but as their confinements are not invariably reported to the Bureau of Vital Statistics of the Board of Health, it is impossible to state accurately what proportion of all confinements in New York City are conducted by them, but a claim has been made that it amounts to 45 per cent. Among the Italian population particularly midwives, no doubt, attend a greater number of women in labor than are attended by regular physicians. It must be acknowledged, however, that the Italian midwives, although far from perfect, have been equipped with a somewhat better training than is met with among the Jews. Notwithstanding this, we get a great many abnormal cases among this class of people which would have been attended with better results if they had been under the care of a hospital.

The large material which comes under the direct control of our hospital is available for study and instruction not only by the house staff, but has also been made use of to afford medical students practical training in obstetrics. Especially during the vacation months, large numbers of medical students are in attendance, who, after spending a week of preliminary work in the hospital, are sent out in pairs to cases in the tenements. They are usually sent out to confine multiparæ who give a history of previous normal labors, and as soon as they arrive at the case are compelled to send in a report of the patient's condition to the hospital. These cases are visited by one of the staff men, who corrects the diagnosis made by the students, and remains at the house under certain

conditions. The students are required to transmit reports of the progress of the case at regular intervals of two hours. Neither the staff nor the students are allowed to interfere in an operative sense with the progress of a labor, and by means of the detailed reports to which I have referred, we are enabled to keep in constant touch with this outdoor service, so that practically nothing escapes us. Cases which require attention, such as placenta previa or eclampsia, are temporarily treated by the staff according to the suggestions given in the hospital's pamphlet of instruction, but the house surgeon is immediately notified of what transpires, and through him the further disposition of the case is directed. Cases of placenta previa, hemorrhage from other causes, eclampsia, and various pelvic deformities, are usually sent into the hospital for further treatment; but versions, forceps, craniotomies, curettages and a number of other operations are done directly in the patients' homes with excellent results. The hospital also extends its care through the puerperal period, the women being visited every day for the first three days, then every other day until the ninth day, when they are examined and discharged from the service if no abnormality is present. If necessary, they are kept under supervision until they are well enough to go out, and if further treatment is required, they are referred to the gynecological clinic at the hospital, which is in session on four afternoons of the week, and is conducted by one of the attending surgeons. The staff, students or nurses who make these postpartum visits, are required to observe and note carefully all the details of a woman's condition, which are then entered on the history sheet. All ordinary complications are treated at home, but if septic or other conditions should develop that cannot be handled by the outdoor staff, the case is referred to the hospital. To show how rarely this is necessary, I want to call attention to the fact that during the year's work, from April 1, 1911, to April 1, 1912, only 25 cases were referred to the wards. All postpartum gynecological conditions, whether requiring operative or other treatment, are cared for by the hospital, so that it is not necessary for a woman to apply to another institution.

I have gone somewhat into detail in drawing this comparison between the care extended by the ordinary midwife and that by a large maternity hospital, in order to show what can be done with proper supervision, which is necessarily entirely lacking in the practice of the midwives as a class. The question naturally arises, Can our maternity hospitals be extended to include all the cases among the poor if it becomes possible

in time to abolish the midwife as a factor in the situation? This is a difficult question to answer at the present time, and time and experience alone will decide the same. At present our maternity hospitals are not sufficient to cope with the situation, especially as the assistance extended by the City of New York has of recent years been restricted rather than extended. The time will come, however, when the situation will have to be viewed in a more liberal light by the public authorities.

A question of vital importance, to which I am tempted to refer again in this discussion of the midwife situation, is the housing problem, to which, unfortunately, too little attention has been extended as a factor. The education of our poorer classes, the dwellers in the tenements, cannot be favorably extended in either moral or physical directions until some impulse has been given to the movement for bettering the conditions under which they live. The problem is not an easy one to solve. The mere insistence on better tenement dwellings is insufficient, unless these people, as individuals, can be made to recognize the necessity for personal and household cleanliness. It may be argued by those who see the only solution of the problem in the betterment of the tenement structures that this is all-sufficient to accomplish the desired ends, but to anyone who has been favored with the practical knowledge obtained from associating with these people must come the realization that the personal equation plays an even more important part. That people can remain clean, even under the most disadvantageous surroundings, may be readily shown to anyone who will take the trouble to make a pilgrimage through our tenement districts. There are individual lodgings and houses no better, and often not as good, as those immediately surrounding them in which an effort at maintaining cleanliness is plainly apparent. There are certain classes of our foreign population just as poor, and usually as ignorant, as their neighbors, in whose lodgings and on whose persons the desire to be clean is evident without question. On the other hand, the majority of those people have absolutely no conception of the ordinary laws of cleanliness, and it will be a difficult matter to eradicate the lack of this desire, which has been prevalent for centuries.

There is no doubt that better dwelling houses for these people will accomplish a great deal, but unless they themselves can be taught the necessity of keeping clean, the shell in which they live will not accomplish the desired result, any more than an ornamental container of any kind will improve the quality of the contained product. The midwives them-

selves are largely of the class in whom cleanliness is an important factor in their daily life, so that it is quite natural to assume that the necessities of conducting a labor in a cleanly manner will not appeal to those who cannot understand the principles which form the basis of this question.

Another factor that enters here is the attitude of the physicians practicing in the poorer quarters of the city. I have found repeatedly that these men will confine women for the sum of from \$10 to \$15, which is about what the average midwife gets. Will it be possible to turn over all the cases who are able to pay a midwife to the local physicians? That depends entirely on the latter, who need not refuse to take these cases at the figures stated if they so desire, but, unfortunately, the character of the assistance extended to women at the price is often commensurate with the same, and it must be regretfully admitted that as much, if not more, poor obstetrics occurs in the practice of physicians of this class than even among midwives. This is a circumstance that must be taken into consideration, and if we insist on proper care being given to these women, we must insist that it be extended by the doctor himself, and if he cannot, or does not, care to do it, either to turn the case over to someone else or rely for the treatment on a maternity hospital. In any case it would seem as if the midwife could be eliminated as a factor in this situation. But there are thousands of other women to whom a fee of even this size is practically prohibitive, and I know of instances where women have received the attentions of a midwife, such as it was, for the sum of \$2 or \$3. It is this class of midwives who are the most ignorant, and who do the most harm.

How, therefore, shall we solve the problem? Shall we decide it on its financial, or on its humanitarian, aspects? If we are to decide it along the former lines, then an entirely different attitude must be taken than we have hitherto assumed. If these people cannot afford the services of a reputable physician for this purpose, it cannot be regarded as an act of pauperism to assist them in accepting the aid of a hospital. The question may be answered along the same lines as that which has been solved, in part at least, by certain of our charity organizations, who, in the case of a widowed mother, instead of taking her children and placing them in an orphan asylum, with all the unfortunate features that go with it, assist her directly by financial and other aid to keep them under her personal influence at home, an influence which, with all its drawbacks, is in the majority of cases preferable to that exerted by an orphanage.

There is one circumstance to which constant reference is made in a discussion on the midwife problem, and that is that more cases of sepsis, ophthalmia neonatorum, and various complications in labor are to be found in the practice of physicians than among the cases attended by midwives. It seems to me rather an unfortunate basis of comparison for the abolition of the midwife to say that there are doctors who do not do as well, or who do worse, than this personage. The doctor whose faults of commission are brought forward in this manner cannot be held excusable for them. If his obstetrical work is done in a false or slovenly manner, this should be the subject of correction, but simply because this type of physician has been pointed to with the finger of scorn, there is no valid reason to accede to the demand for the midwife as an institution.

It is not within the scope of the subject assigned to me by your chairman to recommend measures intended as substitutes for the midwife, but I hope to have shown what can be done by a single agency in the way of scientific care and attention for that class of women who believe that they are compelled to resort to midwives as aids in their confinements. In addition to what the maternity hospitals can do in the immediate care of the patient in labor and the early puerperium, much can be accomplished by allied organizations working in harmony with the hospitals, including the various nursing and welfare societies. Co-operation, such as that indicated, which will teach these people to help themselves, to practice cleanliness and decent living, to appreciate the value and necessity of proper care during the child-bearing period, will do much to gradually but surely, eliminate the midwife from this field of medical practice, which belongs to the scientifically trained physician, and to none else.

DISCUSSION

Dr. Alice Weld Tallant, Philadelphia: I live in a city which rolls up year after year an average infant mortality of more than 5 per cent from stillbirths. In 1911 the percentage was 5.3 per cent, or in other words, one out of every 19 babies born in Philadelphia last year came into the world dead—and this in one of our greatest medical centers, the home of six medical schools. For the whole State of Pennsylvania the proportion is naturally lower, but even there, when we figure out the relation between the 209,036 births and the 9,828 stillbirths, we find a foetal mortality of 4.7 per cent, or one death in 21¼. It hardly sounds as if Pennsylvania babies had a fair chance, does it? And what are we to say about Pennsylvania obstetrics?

Dr. Williams' paper last year set before us all too plainly that improvement in the obstetrical training given by our medical schools is sorely needed, if their graduates are to go out fitted to cope with the

problems of this great branch of medicine. But clearly as I recognize the value of his home-truths, I cannot help feeling that to over-emphasize them is hardly fair to even the rank and file of physicians. Only a short time ago, in the company of a "lay" friend, I heard a paper on the midwife problem in which the writer, himself a doctor, quoted so freely from Dr. Williams, and laid so much stress on the obstetrical shortcomings of the medical profession that my friend finally turned to me with the indignant protest, "Why, that paper makes the midwives out better than the physicians." Now, while I am ready enough to acknowledge that we have our imperfections, I still wish to put in a plea for the doctor versus the midwife in obstetrics.

The practice of obstetrics seems to be so largely made up of normal cases, in which apparently the patients might have come through successfully without any medical attendance, that it has always been hard for the general run of people to realize how near the abnormal is hovering. Even students, in their yearning for "interesting cases," are slow to appreciate that judgment and wise management may have turned the scale in favor of an uneventful labor and convalescence. I myself have often maintained that obstetrics is a cheerful specialty because the great majority of the cases turn out well—but always with the reservation that when an obstetrical case *is* bad, nothing in all the range of medicine can be worse. It is no wonder then that the world is still following the tradition of thousands of years in retaining the service of the untrained midwife for its women in childbirth.

There is, of course, something to be said on the side of the midwife. She may be well trained (although that is sadly uncommon in this country); she may be capable of conducting a normal case and recognizing the complications which require a physician's services. She usually charges less than a doctor. It is claimed that she is often helpful in the homes of her patients, apart from her professional work. And whatever else she is or is not, she has always one fundamental point in her favor; she is a woman. We may think ourselves far removed from China or India, where tradition, custom, superstition—what you will—requires that women shall be attended by women; but a little investigation among the poor of our great cities, and particularly among the foreign element, brings to light conditions closely akin to the Orient. Miss Crowell's statistics, for example, show a large proportion of confinement cases are attended by midwives in Chicago, running up to 86 per cent among the Italians.

The dark side of the midwife question has been clearly pictured by those who have studied it—utter lack of training, ignorance and incompetence, uncleanly, not to say filthy, habits, and worst of all, in a certain number of cases, a willingness to turn to criminal operations as a means of revenue, which makes such women abortionists more than midwives. In such company and in the absence of proper regulation, the good midwives are so overshadowed that the whole class gets a bad name.

I think no one will deny that whatever the excellence of the obstetrical courses given in our medical schools, we shall wage but a losing battle against infant mortality at birth, as long as we allow any woman, however dirty or ignorant, to call herself a midwife and ply her trade without let or hindrance. It seems an equally self-evident proposition that the first step forward should be the regulation and licensing of midwives, with such restrictions that the incompetent will be forced out. Further than this, if we are to have midwives, provision must be made for their training.

But after all, is our ideal to be the maintenance of trained midwives as a permanent institution? What one of you here would be willing to employ in your own family even the most capable midwife in preference to a physician? Why then should we advocate midwives for the women of the poor? It is all very well to say, let the midwives take charge of the normal cases and call in a physician if need arises; but who knows how long a case will remain normal, how sudden may be the emergency or how grave the complication; how disastrous the result before the physician can be secured?

It is true enough that we cannot by the wave of a wand abolish midwives, and that we must perforce educate and license the competent ones for many a year to come; but in the meantime we must carry on quite another educational campaign and train the women of this country to use other agencies than midwives. Such a campaign can best be conducted through our maternity hospitals and out-practice services, which should surely be relied upon to demonstrate the value of a trained physician in confinement cases. This work has long been done on a splendid scale by the Lying-in Hospital of the City of New York, as well as by many other hospitals, and the results are there for all the world to see. Anyone who has done medical work in our so-called slums knows that good obstetrics can be practiced in the most unfavorable surroundings, and that dirt and poverty do not mean mortality for either mother or child, so long as the obstetrician is clean.

In the out-practice of the Maternity of the Woman's Medical College of Pennsylvania, which covers the crowded foreign quarter of Philadelphia, we have had in our last 2,500 cases 3 maternal deaths (12/100 of 1 per cent), and our gross mortality from stillbirths (including many macerated or premature babies) is $2\frac{1}{2}$ per cent, while the whole city averages $5\frac{1}{3}$ per cent of stillbirths at term. I give these figures with no intention of lauding our work, but simply to show that poor surroundings bear no relation to obstetrical success, and that the spread of such institutions will be a powerful factor in lessening infant mortality at birth.

Besides the ground covered by medical charity, there still remains a wide field for action among the poor but self-supporting families who will not apply to free clinics, and have used the midwife because she was inexpensive and a woman. Without meaning to be prejudiced in favor of my own sex, I cannot help feeling that here must lie a province for women physicians, for it seems only reasonable to suppose that women doctors will be more readily accepted than men as substitutes for midwives. If so, they must more than ever secure the best possible training in obstetrics, and wider opportunities in the best schools and hospitals should be made available for them. The question of compensation in these cases is a problem yet to be solved.

In this whole discussion we physicians must not be over-righteous in our condemnation of the midwives. We must look to the beam in our own eye, so accurately located for us by Dr. Williams, and we must put forth our combined forces in constantly raising the standard of our obstetrical work, whether it be among the rich or the poor. The conduct of a case of labor carries with it the double responsibility for mother and child, and dangers may arise at any time, which will tax to the utmost the skill and judgment of the ablest physician. For the woman who must pass through the ordeal of child-birth, surely the best is none too good.

Dr. J. R. Freeland, Pittsburgh: Dr. Ziegler and Dr. Kosmak have told us how we may hope to eliminate the midwives. On the other hand, if we decide to license and train them, the question is what is necessary to turn out properly equipped midwives? Three classes are recognized—the handy woman who gets her training by attending her neighbors; who does not charge for the attentions she gives, but usually at the finish gets a present of about five dollars. The next higher class is represented by the one who has been trained under a practicing physician in a poor district. She has attended a certain number of cases under the supervision of a doctor, and gets a certificate and is put on the roll of practicing midwives. These two should be eliminated. In the third class are the midwives trained in special lying-in hospitals; and if we decide to license midwives, these are the only ones to whom licenses should be given. The essentials of such training as given by the Rotunda Hospital of Dublin, Ireland, of which I was formerly assistant master, are:

- (a) The conduct under supervision of twenty deliveries. Forty vaginal examinations on patients attended. Twenty catheterizations. Palpation and auscultation on all patients delivered. Attendance at all deliveries while on duty.
- (b) The care of twenty women and their babies throughout the puerperium. Only three patients cared for at a time.
- (c) Six months' residence in hospital and attendance at daily lectures by the master, and three lectures a week by assistant masters.
- (d) Attendance at all operative work and clinical lectures.
- (e) Examination at end of term.

The best of the nurses graduating from this institution go into private practice as obstetrical nurses, not midwives.

Others at the end of a year are known to be doing very poor work, indicating that this training or the subsequent supervision has been inadequate. Their work can only be described as a little better than that of the midwives in the eastern section of New York City as outlined by Dr. Kosmak.

In Great Britain, with 30,000,000 inhabitants, there are approximately 37,000 cases available for instruction of midwives. America would need about 110,000 cases to train midwives to the standard required in Great Britain, which would still mean very unsatisfactory work. Students would suffer in their training if this condition existed, and midwives would have to call as consultants men whose training in obstetrics had been much inferior to their own.

It would seem desirable, therefore, to use the available material for training of students, gradually raising the standard of midwifery. Thus the elimination of the midwife would be only a matter of time.

Dr. S. Josephine Baker, New York: So far we have had no discussion from the platform on the side of the midwives and their patients, and there are two sides to this question. It is all very theoretical to announce that all that needs to be done is to establish enough hospitals to take care of the pregnant women, and then to take these women to the hospitals and have them confined there. I have had charge of the midwife situation in New York City for the past four years. One of the speakers has remarked that medical students might ultimately take care of all women during their confinement. This is hardly practicable in New York City.

We have over forty per cent of all births, or a total of 50,000 women,

confined each year by about 1,350 midwives. These midwives have been placed under the control of our Department of Health. Previous to the assumption of this control conditions described by Dr. Kozmak existed; at the present time I take issue with him. The midwife situation is still far from perfect, but the medical profession is equally far from perfect. There are bad midwives, and there are bad doctors. To say that the average midwife conducts confinements in the manner described by Dr. Kozmak is totally unwarranted. The midwives' bags are repeatedly inspected, and it is the exception to find a bag as he described it. Our nurses make it a particular point to bring dirty bags and show them to me as curiosities, because it is so unusual to find a midwife's bag in bad condition. We realize that the system of controlling midwives is not perfect; we also realize that the midwife in New York City, and in many other cities, is a condition and not a theory. We can talk until we are hoarse; we can build all the lying-in hospitals we choose, but we cannot induce the women to go to them if by racial prejudice and inclination they prefer the midwife. These women are perfectly able to pay a reasonable fee, and they prefer going to a midwife for their confinement.

My experience has been that the after-care given by midwives is infinitely superior to the after-care given by the average doctor for the same fee. The midwife acts as "house-mother;" she washes the baby, often gets the meals, and visits the case for a week or ten days, doing little homely duties, in addition to keeping the patient clean and caring for the baby. The average doctor, for the same fee, comes in in a hurry, often uses his instruments too soon, often lacerates the perineum, and frequently leaves the house in a hurry, and generally makes not more than one or two calls on his patient afterwards, and the criminal malpractice of midwives is no greater than the criminal malpractice of doctors in New York City. To talk against the entire profession because of the delinquencies of a few is unwarranted. We have a stupendous problem before us, but we will not get any help when an association like this says that midwives are wholly bad, and that we must make no effort to improve them.

Until we can have proper training schools for midwives and assure them of proper training in baby care, we shall not have solved the midwife problem, but I can assure you that from my experience of four years in intimate touch with the midwives of New York City I am just as sure as I am of anything in this world that no amount of legislation or ignoring them will drive them out of business. In the big cities they cannot be eliminated; they will practice, whether supervised or not. If unsupervised, they will not report births attended by them. A large number of women demand their services; these women will not have hospital treatment, as they have a natural prejudice against hospitals, and believe that they will be practiced upon by the young doctors, and so they refuse to go.

In New York City 26 per cent of our midwives are Italian, 23 per cent German and 20 per cent Austrian. These women have been trained in their home countries. Only 9 per cent are natives of the United States. Those who hold foreign diplomas are generally competent. The school at Bellevue Hospital is a splendid beginning for the training of midwives. As soon as they are able to handle the proposition of training the midwives of New York City the Department of Health will demand that every woman desiring to practice midwifery take her course at this school before a permit will be granted. We have authority, by a special act of the Legislature, to have these

women under the supervision of the Department of Health. As to the quality of the supervision, I feel that I am not the one to reply to the criticism that has been made. We have a special staff of five doctors and nine nurses to supervise the midwives. While the system is not perfect, it goes about as far as mere supervision can go. I believe that until we get the training schools we cannot improve their status farther than we are doing now by mere supervision.

The Chairman: I am very glad that we have heard from Dr. Baker on this subject, as I did my best to induce her to prepare a paper for our program.

Dr. Philip Van Ingen, New York: I take strong exception to two or three things that have been said. I think a fair way to look at this problem would be to consider the results of the care given to women and children in cases attended by midwives and doctors. The papers that were read this morning recommend the abolition of the midwife, and say a great deal about increasing the education of the physician. I have been interested in seeing what kind of care was given to women in the poor quarters of New York, as shown by the number of stillbirths and the number of babies dying during the first week of life, and by the amount of puerperal sepsis reported. I have lately looked through the statistics for the Borough of Manhattan and tabulated the findings. I think they have a distinct bearing on the situation.

I took the poor section of Manhattan Island, leaving out of consideration for the time being the areas where people of the so-called better classes live. Let me say at the outset that I am theoretically opposed to the principle of midwives, but we are a long way off yet from the point where we can get along without them. In the area mentioned above, from which 80 per cent of the births in Manhattan Island were reported from the 1st of January to September 12th of this year, 48 per cent were in the care of physicians (not in hospitals) and 51 per cent in the care of midwives; in other words, practically the same proportion.

Then I looked up the stillbirths reported by midwives. Dr. Guilfooy says that midwives report births and stillbirths better than physicians, and that they are more accurate and prompt. There were 1,199 stillbirths reported by physicians and 122 by midwives; 96 by the coroner. These figures are too startling to be strictly accurate. I have, therefore, analyzed these stillbirths occurring in the care of physicians, and find that 574 occurred after the eighth month of gestation. I have left out of consideration all cases of stillbirths after this date reported by physicians without any further explanation as to cause, and they amount to nearly 33 per cent of the total. I have only considered stillbirths where the application of forceps was resorted to, or where the explanation was given as obstructed labor, prolonged labor, etc.; in other words, those cases which, with reasonable skill, might have been prevented.

To the midwives, on the other hand, I have credited stillbirths, no matter what the period of gestation, together with all cases reported by coroners. Based upon 1,000 terminated pregnancies in the care of midwives, the rate was 13.3 per 1,000. For physicians, on the other hand, the rate was, for the class of cases described above, 18.2.

I have referred back to the birth certificates of the 581 deaths under one week of age occurring during this same period—64.9 per cent were delivered by physicians and 35.1 per cent by midwives.

The supervision of midwives has been criticised by Dr. Kosmak. Dr. Kosmak describes the condition of affairs he has found, and, if they exist, he is remiss in his duty as a citizen if he has not called the attention of the authorities to such conditions. However perfect a system of supervision is on paper it is always difficult to carry out. I can tell Dr. Kosmak of several cases that have come to my knowledge where the instructions given by the Lying-in Hospital were not carried out. The time for discussion is too short to say a great deal that should be said, but I leave it to you, if you were living in that tenement district, would you have a midwife or a doctor?

Also, if you take away the midwife, what are you going to give the women in her place at the present moment and during the next ten years?

Dr. A. J. Skeel, Cleveland: The preceding speaker has made an appeal to your sense of fairness, and has quoted statistics in this appeal.

Now I wish to appeal to that same sense of fairness in interpreting statistics. If we were to take a thousand healthy, breast-fed babies and put them in charge of nurse girls for a year; then take another thousand marasmic, bottle-fed babies with all manner of diseases, and place them in charge of pediatricists for a year and compare mortality rates, the pediatricist might have the worst of the statistics, but that would not prove that his work was poorer than that of the nurse girl.

That is the kind of comparison made in the statistics just presented to you.

Midwives are obliged to call in a physician when their cases go bad. In every abnormal case, every operative case, every case of hemorrhage, or of any other complication, the midwife must call a doctor, and if the patient dies it is reported while in his hands, and thus her record is kept clear and his shows deaths.

If the neighborhood physician finds the case a desperate one, which cannot be handled at home, he sends the patient to a maternity hospital, which thus becomes the dumping ground of all the worst cases in that locality.

If some of these cases die, they die while at the hospital, whose statistics are thus vitiated.

But this is not all. Every woman who has had this kind of an experience with a midwife in her first labor is afraid at her next confinement, and calls a physician at once. So that even among the patients not referred by midwives he has the largest percentage of abnormal labors.

As to the argument that these foreign women do not want to be confined at hospitals; no one this morning has proposed to confine them all in hospitals, but in their homes with a physician and nurse in charge; and with hospital care for the abnormal cases.

This whole question resolves itself into one which I had never thought anybody would be obliged to argue before an educated, scientific audience; and that question is whether, with a given amount of clinical material, used for training people to practice any branch of medicine—whether you would get better results by beginning with an illiterate individual who does not understand the first principles of medicine—or whether you would get better results by taking a man who has had abundant training, giving him the same material to work with, and then allow him to practice medicine.

The whole situation amounts to this: All over the country we are raising the standards of medical training. We are demanding from one to four years of college education before the study of medicine is begun. We require four or five years more of study before granting a license to practice.

Then men discuss, in all apparent seriousness, if we would not get better results from people who have had none of this training.

Obstetrics is a difficult branch of medicine. The advance has been so rapid that the bulk of the profession has been unable to keep up with it. This proves the need of more clinical material.

That is the line along which the matter should be worked out; not by an attempt to show that a woman who can hardly read or write, a person of no education at all, can practice this branch of medicine better than a person who has spent six or eight, or even ten years in preparation.

The proposition is so absurd that it seems needless to spend further time in its discussion.

Dr. A. P. Hammond, Cleveland: I thought the society might be glad to know some of the conditions that exist in Cleveland. In the last four years we have been engaged in the prosecution of illegal cases of practice of midwifery, under the auspices of the Ohio State Medical Board. I fully agree with Drs. Ziegler and Kosmak; and while I admit that some of the conditions that Dr. Baker has mentioned exist, I think that they could be remedied. There is no excuse for allowing them to exist. We can discourage them easier than we can encourage them. Seventy per cent of our population is foreign, and we have 150 registered midwives, registered by the Ohio State Board. In the last four years it has been necessary to prosecute 80 cases, most of them for practicing illegally, some for causing ophthalmia neonatorum by neglect and some for producing criminal abortions. Twenty-five per cent or more of the midwives produce criminal abortions, and do not do midwifery at all. One of the cases we prosecuted was convicted in Common Pleas Court of criminal abortion. The midwives I have come in contact with are ignorant and unprepared, even those that were educated in Europe. They are dirty and unfit for the practice of obstetrics. Most of them charge \$5.00. We have found in all the cases of neglect in ophthalmia neonatorum that they were registered midwives, and many educated in Europe; Italians, Hungarians, Polish and Bohemian midwives. I think the problem is serious, and it seems to me the remedy is largely covered in Dr. Ziegler's paper. The Medical Societies and this Society should make recommendations to different State Boards. The Ohio State Board is lenient about registering these midwives, and yet they are ready to prosecute them if necessary. It seems to me that the remedy lies in the State Boards being more strict, and I think that examinations should be held entirely in English.

Dr. B. Franklin Royer, Harrisburg: By sympathy and training, I, of course, favor the physicians in this question at issue; but by actual experience I have to endorse strongly everything that Dr. Baker has so well said. Any health officer who has followed the splendid work she has been doing in New York City, or who attempts to analyze this question with care, must see the utter futility of physicians advocating a standard for midwifery higher than their own standard of proficiency. That midwives are doing a fair grade of work equal to phy-

sicians can easily be proven. Dr. J. Whitridge Williams, in his splendid paper before this Association last year, showed how absolutely unprepared the average doctor is for the practice of obstetrics. We are just beginning to demand of doctors sufficient training to have them properly take care of normal cases. In most communities there is not a physician even well enough equipped to handle abnormal cases. Much bad obstetric work is due to the impatience of doctors and their bad obstetric technique. In Pennsylvania of 209,000 births a year, 100,000 occur in municipalities of less than 8,000 population. All this outlying rural population has no access to hospitals, and there are no students studying medicine there. There is ample opportunity to establish clinical service in those places where women can get training to fit them for bedside work in obstetrics. I believe it would be far better for the future of obstetrics and for mothers and babies if we were to encourage a higher training in obstetrics, encourage obstetric specialists, and encourage and train women for proper, clean midwifery. The midwife, no matter how well you prepare her, should be supervised by someone who does obstetrics as a surgeon does surgery.

Dr. Ziegler: It is generally admitted that there are two sides to every question. I am quite ready to admit that the midwife question is no exception to this rule. From the discussion, however, it would appear that New York has one side and the rest of the country has the other side. The whole argument of the opposition is based on the comparison between midwives and poor doctors. As has already been pointed out, physicians cannot be properly trained in obstetrics until sufficient clinical material is provided for the purpose, and since the midwives now utilize this material in making a livelihood, the best argument for the elimination of the midwife is the confession that so many poor doctors exist.

If Dr. Baker could be induced to use the same amount of mental effort, energy and perseverance in the abolition of the midwife as she now exerts in her defense, she would accomplish much in the way of solving the problem, not only for New York City, but for the entire country. We realize that the work is poorly done, and we appreciate that it will take time to accomplish it, but let us not say that it cannot be done. Let us rather educate the public, train physicians and mould our legislation with the view of giving to even the poorest woman in the country competent medical attention during childbirth.

Dr. Kosmak: It appears strange that in discussions of the midwife problem the objections to any movement tending to abolish this personage should come largely from without the ranks of the obstetricians. The majority of the latter, especially those engaged in welfare work in our large institutions, who are thoroughly acquainted with the situation, are in favor of the immediate or gradual abolition of the midwife. In New York City a few of the more prominent obstetricians are interested in the Bellevue School for Midwives, sincerely believing that the situation can be improved by a suitable institution for these women. They have a right to their ideas, which are undoubtedly dictated by personal experiences, but in contrast to this opinion there are others who have an equal right to an opinion likewise based on their own experience in this matter. It seems to me, however, that the attitude taken by those who favor the educational development of the midwife is a very inconsistent one from the medical standpoint. Within recent years medical practitioners have been deprived of several important lines of practice. Thus in one of the

leading universities of this country, which is situated in New York City, a school of optometry has been started in direct opposition to the wishes and desires of the ophthalmologists. A few months' training permits the graduates of this course to practically announce themselves as expert diagnosticians of ocular troubles, and this has resulted in a great many serious eye lesions being unrecognized at the time of examination by these insufficiently trained men. The optometrist cannot, as a rule, see any further than the pair of spectacles which he puts on his customer's nose. Trachoma, glaucoma and other serious intra-ocular conditions are not recognized, and yet, notwithstanding the strong protest, this so-called optometrist has been licensed to practice unrestrained in this most delicate branch of medicine. I wish to bring this statement forward by way of comparison with what I am about to say. For we are practically duplicating this state of affairs by the introduction of the so-called trained midwife, and are thus taking away from the medical practitioner an opportunity to practice this branch of his profession. If such an agency is permitted to develop, the public will accept it in the same spirit as they have accepted the optometrist. We have heard more or less in this meeting about the milk problem, yet the people who are at the head of these welfare societies do not delegate the preparation of milk formulæ to anyone but a graduate physician.

It has been repeatedly stated that we can educate and control midwives. I am sorry to say, in opposition to what Dr. Baker has stated, that in my contact with the lower East and West sides of New York no such supervision has been apparent. Moreover, the class of midwives who are supervised are not always the ones who get us into trouble. It has also been stated that the maternity hospitals of New York are not doing perfect work. I am ready to acknowledge this, but I am sorry that I have to admit it, although the conditions are such that perfect work is almost impossible. We do the best we can in our maternity hospitals with the means we have, and if you would realize what kind of people we have to deal with, you would be ready to believe what I say. I thoroughly agree with a previous speaker who has shown you by his statements that people choose midwives simply through ignorance, and that if the subject is properly presented to them they never hesitate to accept a doctor in preference to the midwife. Dr. Van Ingen's statistics and comparisons between doctors and midwives can be explained by the fact that the midwife in all cases of trouble sends for a doctor, and that is what makes the mortality of the latter necessarily high. If a large maternity hospital, with the careful supervision over its work which I have previously outlined, gets into trouble with its cases, a great many things undoubtedly occur in the practice of midwives which are never brought to the attention of the authorities, and never find their way in the public records, whereas everything that happens in the work of a large institution is subject to public inspection and criticism.

Dr. Baker: Two physicians have made the point that in Dr. Van Ingen's statement the physicians got all of the abnormal cases, and the midwives were charged with only the normal cases. Dr. Van Ingen is not here, but I feel that I should like to answer for him. He said that he counted against the midwives every case of possible abnormality and all stillbirths, and against the physicians he counted only the stillbirths after eight months which were due to preventable causes.

Dr. Kosmak has stated that he did not believe that the bags brought to the department were the same ones that the midwives used. The

midwives do not bring their bags to the department. Every midwife in New York City that is registered is visited by a physician or trained nurse at least once a month; at that time her bag and complete equipment is examined.

If Dr. Kosmak found bags such as he has described, I think it was his duty to report the matter to the proper authorities. Indeed, it seems to me the duty of every good citizen to report anything that is wrong or against the law, and not store it up for a meeting like this, simply to make a sensation.

The midwife situation is one of the most difficult in the world, particularly among a cosmopolitan population such as we have in New York City, but the foreign women who employ midwives are not yet ready to lend themselves as medical material and subject themselves to the treatment of young doctors in hospitals; they demand midwives, and will have them, supervised or unsupervised; therefore, let us raise the standard of the practice of obstetrics so that it will be possible to say that the midwives are giving these people as good attention as the doctors of the city could.

The Chairman: I think Dr. Baker has indicated the ground on which we may all stand. We stand for the improvement of the teaching and practice of obstetrics, not only in New York, but in the United States.

REPORTS

MIDWIFERY INVESTIGATION

Birmingham, Ala.

By Wm. M. McGrath, General Secretary, Associated Charities

The number of midwives practicing in Birmingham is about 115, with approximately 100 more throughout the county. All in the city are negroes, with the exception of four—two Italians, one German, one native American. There is no examination prior to the commencement of their official practice; this permission is granted by the County Health Officer. No form, even, is filled out in making the application or in granting same, the county official merely writing on a piece of paper that "..... is permitted to practice as a midwife in Jefferson County." There is no follow-up work, nor any record kept of the cases handled by these midwives. They report births once a month to the City Health Officer.

Practically 75 per cent, or even a little higher, of the colored children born are ushered into this world under the auspices of a negro midwife. Of the 2,960 children born in Birmingham last year 927 were delivered by midwives.

The system, as you see, is open to many abuses, and is in urgent need of complete re-organization. One difficulty we have to contend with is with the poorer classes of white people, who, in many instances, also avail themselves of these negro midwives, and that is the small amount they have to pay for attendance during delivery. The midwife charges from \$7.50 to \$10.00. If we succeed in obtaining the consent of a woman about to be confined to procure for her a regular practitioner, we are compelled to obtain same at the aforementioned price, or make up the difference.

Another very unfortunate condition, productive of many evils, is the engaging of a negro "nurse," who takes charge of the case immediately

after delivery. A great deal of infection of both mother and child has been traced to improper treatment by this negro nurse, local infection of the mother being quite common; the infection of the child being principally of the eyes and umbilical cord. I regret to state that some of our practitioners cannot escape criticism of lack of care. We have found where, immediately after the birth of the child, the doctor has taken the family lard pail and greased the child from this receptacle with the ordinary cooking lard.

There has been some marked improvement in the matter of birth registration in this district during the past year or two, but there is still a great deal left undone. The machinery of the county and Health Department is far from perfect, not only in the construction, but in the *modus operandi*. A curious anomaly is that the City Health Officer is elected by the County Medical Association, and is paid by the city. The door to many abuses is thus thrown wide open. We are fortunate at present in having a very efficient man as health officer, who I believe would go far if he had the opportunity, but he is at present hampered by the economy practiced by the city administration, due to a depleted treasury, and a policy of retrenchment which has been adopted, commendable in itself, but misdirected wherein a reduction of the health forces of the city has been made. The department is now working on the lowest basis of efficiency, due to this retrenchment, and it is impossible that the proper supervision be given the midwives that are practicing here in such large numbers.

It is the earnest hope of those interested in social progress in Birmingham that a board of health will be installed, and that the department will be cut off entirely from the county machinery. The department at present is much interested in the better handling of the midwife situation. When returns have been obtained from the investigation now being conducted through our organization, I trust we will be able to strike a body blow at the present system, and make more efficient the midwife phase of the local health situation.

INVESTIGATION OF 363 MIDWIVES IN CHICAGO

By CAROLINE HEDGER, M. D., Chicago

METHODS OF PRACTICE

Average equipment. (The law of Illinois forbids midwives to administer any drug)—

Ergot
Lysol
Carbolic acid
Vaseline
Spirits camphor
Boracic Acid
Catheter
Douché bag
Cotton
Tape
Scissors

Visits before confinement were made by 97; 23 carried instruments; 23 used rubber gloves; 97 made visits before confinement; 1 used chloride; 5 bichloride; 235 lysol; 45 carbolic acid; 218 administered ergot; 3 quinine; 6 creolin; 224 used douches.

TABLE I—363 MIDWIVES IN CHICAGO. PERSONAL STATISTICS

Nationality	Age		Married or Single	Language Spoken	Education		License	Diploma	Registered	Advertised	Training		Neighborhood	Home Conditions					
	Over 50	Under 50			Read and Write English						Foreign	American		Foreign Quarter	Fairly good	Clean	Dirty		
Polish.....	106	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bohemian.....	44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lithuanian.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Slavic.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewish.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Italian.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
German.....	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scandinavian.....	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canadian.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
French.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
American.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Not Stated.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	368	318	145	277	88	8	353	229	86	356	318	856	11	110	263	211	178	317	46

TABLE II—363 MIDWIVES IN CHICAGO. FACTS ABOUT THEIR PRACTICE

Nationality	Number of deaths during entire practice		Causes of Death Mothers							Causes of Death Babies		Sore Eyes of Baby					
	Cases a year	Foreign country practice	Increase	Report Births	Mothers	Babies	Pneumonia	Septicemia	Tuberculosis	Hemorrhage	Autoinfection	Eclampsia	Unclassified	"Stillborn"	Unclassified	Number of cases	Reported to Health Dept.
American.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foreign.....	363	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Not Stated.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	363	3 to 500	85 to 194	887	95	1080	4	15	2	8	1	18	53	875	205	139	13

TABLE III—363 MIDWIVES IN CHICAGO—FACTS ABOUT THEIR PRACTICE—(Continued)

Nationality	Labor		Report normal delivery of birth afterward	Tears			Complications		Umbilical cord		Babies eyes			Feed- ing		Take pulse and temp.	Time in bed	Babies bathed	Visits	Cases in home	Average fee	Suspected of practising abortion
	Make vaginal examination	Cleanse vulva and wash hands		Recognized	Sewed by self	Sewed by M. D.	Recognized	Anas.	Medical Assist.	Sterile tape	Asep. powder	Silver Nitrate	Argyrol	Boracic Acid	Breast fed								Bottle fed
American.....9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foreign.....353	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Not Stated .....1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
All	336	All	231	4	219	810	0	810	247	144	87	2	176	All	No Re- cord	363	9 days ad- vised	All once daily	1 daily for 9 days	0	\$10	57

MIDWIFERY INVESTIGATION IN LOUISVILLE, KY.

By Miss Elizabeth Shaver, Supt. of Nurses, The Babies' Milk Fund Association of Louisville

The Department of Health gave hearty support and co-operation in the study of the midwife situation in Louisville. They were at the time making a house-to-house canvas to determine the cause of a falling off in the number of births registered last year—as charged by the State Registrar.

With a population of 255,000, there are but twenty women who hold license to practice as midwives, and there are 648 M. D.'s. Of the 4,627 births reported in 1911, 386, or 7.2 per cent, were reported by midwives. That many more are actively engaged in midwifery, and that many births are never reported at all, was discovered during the investigation, although evidence was not sufficient to establish the fact. Many of those registered were found only after tedious search, as the Department of Health is not notified of change of address.

No qualifications are required for registration as a midwife. Of the twenty registered fifteen were foreign, twelve claimed to have been trained before coming to America, and only three read and write English. Two hold diplomas from the St. Louis School for Midwives. The negroes are wholly ignorant, unable to read or write, and all suspected of practicing abortion.

In justice to the Louisville midwives, it must be said that of the cases of ophthalmia neonatorum coming under the care or observation of the Babies' Milk Fund Association, not one could be traced to a midwife. In each instance the case has been under physicians' care, but Kentucky has no law providing a penalty for neglect of attention to the eyes.

Of the twenty midwives, seventeen claim they rarely need a physician's help, and deny either tears or accidents at birth. However, a study of the general physical fitness of the women habitually employing midwives shows a great majority suffering more or less marked invalidism resulting from childbirth.

Lack of hospital facilities and the limited number of visiting nurses makes the problem difficult to solve in Louisville.

There is no marked preference for the service of midwives, except in rare cases, and conversion to the medical profession requires very little effort.

Skilled obstetricians are willing to give their time and influence to develop substitute agencies, and a tentative plan is now being formulated by the Department of Health and the Medical Staff of the Babies' Milk Fund Association that will enable women to avail themselves of expert care at small expense.

The situation in the State at large is far more appalling than in the cities.

Twenty-five hundred midwives reported 10,284 births last year, 17 per cent of the total number.

While it is estimated that 85 per cent are white, the promiscuous practice of midwifery among the negroes defies all effort to calculate either the number of deliveries that may be credited to them or the amount of blindness for which they are responsible.

Most of the midwives practice in Eastern and Southeastern Kentucky, and in the rural communities. In the mountains, where the

obstetrical work is done almost exclusively by midwives, there is universal use of the "birth stool," and the maximum lying-in period is four days. Here they are even employed by the doctors in their own families.

These women are invariably illiterate and untrained, and while it is claimed by those who have had wide opportunities for observation that ophthalmia is comparatively rare, invalidism is a frequent result.

A large company of partially or wholly blind children travel down each year, walking ten, twenty, thirty miles to a railroad, and are enrolled at the Kentucky School for the Blind, in Louisville. Field agents for the school report many more of school age; settlements, schools and churches send stories of the tragic host of the blind in the mountains.

The situation in Kentucky seems to be far less a midwife problem than a question of stimulating the medical conscience and advancing obstetrical efficiency.

REPORT OF NEW ENGLAND COMMITTEE

Your New England Committee wishes to make the following report: We have been unable to obtain from the States of New Hampshire and Vermont any information as to the exact number of midwives practicing in those States. Certain it is that there are very few midwives practicing in the State of Vermont, if any at all.

In New Hampshire, on the other hand, there are probably a few midwives in active practice in the cities of Manchester and Nashua. We have no report from the State of Connecticut.

From the State of Maine Dr. H. J. Everett, of Portland, reports that in the city of Portland there is one Italian midwife. Out of 1,200 births ten returns were made by a midwife and fifteen by parents (these were all Jews, and were probably midwife cases). Rumford Falls, a large manufacturing town, with large foreign population, reported 257 births last year; none were attended by midwives. In the towns of Biddiford and Saco no midwives are in practice. In Waterville two cases have been attended by midwives in the last two years, but there is no midwife in practice there today. There were 307 births in Waterville in 1911. In the town of Winslow, very near Waterville, there is one midwife in fairly active practice. In Lewiston, with a population of 26,000, and in the town of Auburn there have been no midwives practicing since 1900.

Dr. Ellen A. Stone, Superintendent of Child Hygiene of Providence, R. I., sends the following report:

1. The legal status of the midwife is that she is not recognized by the Medical Practice Act, yet certain duties are prescribed for her, among them being the reporting of births and reporting of inflamed eyes.

2. Certain midwives in Providence deliver only a few cases each year, while others are extremely active, three delivering over 150 infants in 1910.

3. The midwives of Providence report births to the City Registrar very promptly. In 1910, 34 midwives reported 1,536 births. In 1911, 33 midwives reported 1,637 births.

A nurse is employed by the Superintendent of Health of Providence to visit all infants delivered by midwives, and instruct the mother in regard to feeding and caring for her infant. She usually visits the infant on the third or fourth day after birth, and again when it is eight to fifteen days old. More visits are made if there is the need.

MIDWIVES IN MASSACHUSETTS

The fact that many midwives are practicing in Massachusetts in defiance of the law was uncovered by an investigation relative to the prevalence of ophthalmia neonatorum in 1909. In order to ascertain as nearly as possible how many of these practitioners there were, and how well qualified for this practice the "Committee on Birth Returns and Midwives of the Boston 1915" instituted an investigation. The following is a study of the results of this investigation, together with some closely related data obtained by the Research Department, Boston School for Social Workers, supported by the Russell Sage Foundation. This data concerns the association of physicians and midwives in Boston, and becomes of special interest in the light of recent legislation.

The investigation carried on by the "Committee of Boston 1915" employed trained workers acting under the advice of a Boston obstetrician; in two cities the actual facts obtained were collected by other agencies working under the supervision of these trained workers; in Fall River by the agent for the "Society for the Prevention of Cruelty to Children," and in New Bedford by the agent of "The Children's Aid Society."

The plan of campaign adopted by this committee was to see what cities and towns had a foreign population of sufficient size to make midwife practice probable. The City or Town Clerks in these communities were then questioned as to the number of birth returns made by midwives, and of the presence of midwives in that city or town. Then, with these facts at hand, the investigators went to the cities and towns where the midwives existed in numbers large enough to make the study worth while.

As a result of this undertaking 104 midwives were interviewed, most of them in their own homes, and the following tables arranged from facts obtained at such interviews.

Besides these 104 midwives found in the cities and towns mentioned below, there were in 1909 some 45 midwives practicing in the cities of Gloucester, Lawrence, Lowell and Worcester, as reported by H. C. Greene, of the American Association for Conservation of Vision. It is the opinion of the committee that there existed in 1910 approximately 150 midwives in more or less active practice in the State of Massachusetts. In the city of Boston 36 midwives were found in more or less active practice; 18 of these were Italians, 5 Russians, 4 Swedes, 3 Germans, 2 Americans, 2 Irish, 1 Syrian and 1 French.

More than 66 per cent of the midwives in Boston stated that they attend only normal cases, and many of these women notify a physician with whom they are closely associated at the onset of labor in each and every case they attend, so that he will be ready to give assistance should it be necessary. The Italian midwives in Boston charge from \$3.00 to \$20.00 for attendance, and very few do more for the mother and baby than can be accomplished in a daily visit of one hour.

Little can be said about the Russian midwives, except that they do very little work, nearly all the five practicing now solely as obstetrical nurses.

The Scandinavian midwives, all well educated women, deliver between 200 and 250 children every year in Greater Boston, averaging

about 55 cases for each midwife. They received \$10.00 to \$15.00 for each case. Unlike most of the other midwives, they act in the double capacity of physician and nurse, and do much for the comfort of their patients.

In the city of Cambridge, with a population of about 105,000, there are twelve midwives in practice.

In the city of Somerville, with a population of 77,000, there was found but one midwife.

In the city of Chelsea, with a population of 32,000, there were three midwives, and in the town of Brookline, with a population of 27,000, there was found but one midwife. Grouping these suburban cities and towns of Boston, and studying them as a whole, we find that most of these women are past middle life, practically without any technical education, and living in poor surroundings. Additional information shows that most of them are not professional midwives, many of them working without pay for their friends and neighbors. Only six of these seventeen women care for more than twenty women a year, and not one of them attended over sixty cases. The fees average about \$5.00, though one well-trained midwife states she would never take a case for less than \$10.00.

According to the statements of physicians familiar with these midwives and their work, most of these women when left to themselves conducted the case without the slightest knowledge of the principles of Obstetrics.

In the city of Quincy, with a population of 32,000, there were five midwives; Brockton, with a population of 56,000, had three midwives, and in Lynn, with a population of 89,000, there were only three midwives. Analyzing these eleven, we find that they are, for the most part, women under fifty years of age, well educated in all save Obstetrics, and living in comfortable surroundings. They all render the mothers rather more attention than a physician would give. Additional data shows that at least three of these eleven are really obstetrical nurses who only occasionally take full charge of the case. These women have anywhere from less than ten to about sixty cases a year, and receive from \$3.00 a case to \$15.00 a week for their services.

In the city of Springfield, with a population of 88,000, there were eight midwives; in the city of Chicopee, with a population of 25,000, there were two midwives, and in the city of Holyoke, with a population of 57,000, there were five midwives. In these three cities in the Connecticut River Valley six of the midwives were Poles and five were Italians. Two-thirds of these women held diplomas from foreign midwife schools. They all live in fairly comfortable surroundings, and give the mothers rather more attention than they would receive from a physician alone. Additional information shows that these women are doing a large practice, eleven stating that they attended fifty or more cases a year, five of these delivering over a hundred a year, and one over three hundred cases a year. They receive from \$2.00 to \$10.00 for each case. The Italian women are probably, as a class, the best trained, but many of these are practicing medicine in other branches than Obstetrics, according to the statements of physicians familiar with their work.

In the city of Fall River, with a population of 119,000, thirteen midwives were found in active practice. The investigation at Fall River was not carried out as fully as in other cities, and beyond the fact of the actual number in practice, few details were obtained.

In the city of New Bedford, with a population of 96,000, there were twelve women practicing as midwives. All these were over forty years

of age, and eight of them over fifty years of age. More than half of them were illiterate, and all but one without obstetrical education. All of these women gave more attention than would have been given by a physician alone. Additional information showed that only five of these women were caring for more than fifty cases a year, while only three cared for one hundred and fifty as a maximum. Their fees range from \$2.00 a case to \$10.00 a week.

Briefly summarizing, we find that in the year 1910 there were 104 women more or less actively engaged in the practice of Obstetrics without the degree of Doctor of Medicine, in the State of Massachusetts. Of these at least 10 per cent were in reality obstetrical nurses, who only occasionally assumed charge of the actual delivery of cases. We see that a large proportion of these women are over forty years old; over 35 per cent were well educated, and only nineteen were unable to read or write; less than 25 per cent were living in bad surroundings; nearly 25 per cent admitted that they cared for abnormal cases. Only 5 per cent of the midwives investigated were suspected of undertaking abortions.

R. L. DE NORMANDIE, M. D.,
Chairman, New England Committee.

JAMES LINCOLN HUNTINGTON, M. D.,
Secretary.

TABLE I—104 MIDWIVES OF MASSACHUSETTS
NATIONALITIES

Nationalities	Boston	Cambridge Somerville Chelsea Brookline	Quincy Brocton Lynn	Springfield Chicopee Holyoke	Fall River	New Bedford	Total
American.....	2	2	.....	.....	2	1	7
Negro.....	.....	.....	.....	.....	.....	1	1
English.....	.....	1	.....	.....	2	1	4
Canadian.....	.....	2	1	1	.....	.....	4
Scotch.....	.....	1	1	.....	.....	1	3
Irish.....	2	3	1	.....	2	.....	8
French.....	1	.....	.....	.....	.....	.....	1
Portuguese.....	.....	3	.....	.....	4	4	11
German.....	3	.....	.....	2	.....	.....	5
Italian.....	18	.....	.....	5	1	.....	24
Russian.....	5	1	.....	1	1	1	9
Polish.....	.....	2	1	6	1	3	13
Lithuanian.....	.....	.....	1	.....	.....	.....	1
Swedish.....	4	1	2	.....	.....	.....	7
Finn.....	.....	.....	4	.....	.....	.....	4
Syrian.....	1	.....	.....	.....	.....	.....	1
Armenian.....	.....	1	.....	.....	.....	.....	1
	36	17	11	15	13	12	104

TABLE II—104 MIDWIVES IN MASSACHUSETTS
PERSONAL STATISTICS

City	No. M'wvs.	Age in Years				Residence in America in Years	Education		Diploma	Home Conditions											
		20-29	30-39	40-49	50-59	60-over	1-10	10-20			Over 20	Yes	No	Yes	No	American	Foreign	None	Good	Fair	Bad
Boston.....	36	4	7	12	9	4	14	7	15	30	6	19	17	2	21	13	16	17	3		
Cambridge, etc.....	17	0	1	1	9	6	1	5	11	12	5	15	2	0	2	15	2	7	8		
Quincy, etc.....	11	1	3	3	3	1	3	4	4	11	0	9	2	1	3	7	8	2	1		
Springfield, etc.....	15	2	4	6	2	1	11	1	3	14	1	6	9	1	10	4	3	7	5		
Fall River.....	13				2	1		3	6	2		7	5		1	11	5	5	3		
New Bedford.....	12	0	0	3	5	4	0	5	7	5	7	9	3	0	1	11	6	1	4		
	104	7	15	25	30	17	29	25	46	74	19	65	38	4	38	61	40	39	24		

TABLE III—104 MIDWIVES IN MASSACHUSETTS
FACTS ABOUT THEIR PRACTICE

City	No. M'vts.	Length of practice in years				At- tends Normal Cases Only	Uses Anti-septics	Equipment Cleanliness Bag	Care of Infants Eyes and Cord	Atten- tion to Mothers	Sus- pected Crim- inal prac- tice	Re- ceives Cases for Cases at home									
		1 or less	1-10	10-20	20 or more	Yes	No	Yes	No	Good	Bad	Yes	No	Yes	No						
Boston.....	36	1	8	17	10	22	14	30	6	14	7	11	4	10	26	18	18	4	32	2	36
Cambridge, etc.....	17	0	4	2	11	13	4	12	4	0	5	2	10	1	16	16	1	0	17	0	17
Quincy, etc.....	11	0	5	3	3	8	3	11	0	6	2	1	2	1	10	11	0	0	11	2	9
Springfield, etc.....	15	0	3	9	3	14	1	14	1	6	5	2	2	1	14	11	4	0	15	0	15
Fall River.....	13	—	1	5	4	1	2	4	3	1	—	1	—	1	11	—	—	—	—	—	—
New Bedford.....	12	0	1	3	8	12	0	9	3	—	—	3	1	0	12	12	0	1	11	1	11
	104	1	22	39	39	70	24	80	17	27	19	20	19	14	89	68	23	5	86	5	86

**REPORT ON THE STUDY OF AGENCIES IN BALTIMORE, MD.,
CARING FOR WOMEN IN CONFINEMENT
By LOUISE PEARCE, M. D.**

This investigation was carried out in June, 1912, at the request of Dr. Mary Sherwood, Chairman of the Midwifery Section of the American Association for Study and Prevention of Infant Mortality. It was done in the hope of getting accurate information as to the extent and quality of obstetrical work of Baltimore institutions in order to contrast it with that done by poorly trained inefficient midwives. In this study twenty-eight (28) institutions were investigated.

Hospitals—inside services.....	16
Hospitals—outside services.....	5
Private Charitable Associations.....	2
Dispensaries	5
Johns Hopkins Hospital—inside service	
Johns Hopkins Hospital—outside service	
University Hospital—inside service	
University Hospital—outside service	
Mercy Hospital—Maryland Lying-In Asylum—inside service	
Mercy Hospital—outside service	
Maryland General Hospital—Maryland Lying-In Hospital—inside service	
Maryland General Hospital—outside service	
Franklin Square Hospital—West End Maternity—inside service	
Franklin Square Hospital—outside service	
St. Joseph's German Hospital—inside service	
The Church Home and Infirmary—inside service	
Hebrew Hospital—inside service	
Hospital for the Women of Maryland—inside service	
Maryland Homeopathic Hospital—inside service	
St. Luke's Hospital—inside service	
St. Agnes' Hospital—inside service	
Provident Hospital (colored)—inside service	
Mother's Relief Association—outside service	
Baltimore General Dispensary	
Baltimore Eastern Dispensary	
Northeastern Dispensary	
Christ Church Dispensary	
Neal Institute	
Medical Clinic Dispensary	
City Municipal Hospital—Bay View	
Union Protestant Infirmary	
Maryland Association for Study and Prevention of Infant Mortality (Babies' Milk Fund Association)	

Of these twenty-eight institutions, three do not take obstetrical cases; one private charitable organization exists for the purpose of delivering respectable worthy white women, the other handles pre- and post-natal cases, but does no active delivery work. This is done by various hospitals included in the above list. None of the dispensaries does any obstetrical work but refers all cases to the nearest hospital.

Great difficulty was experienced in most of the institutions investigated in getting any accurate or up-to-date statistics. Indeed, in several none were obtainable; in many no tabulated, summarized records appear to be kept and so approximate figures had to be taken.

In a few of the hospitals no annual report was available. Owing to the different systems of record-keeping in the various hospitals and to the fact that practically all have different fiscal years, the identical time limits could not be observed in getting records for certain months or years, but in each case the same extent of time has been observed, and as nearly as possible the same time. Hence our results are of necessity not as exact and accurate as we had hoped to make them, but we feel that they are as nearly so as it is possible to have them and therefore their use for comparison is justified.

In one hospital one thousand histories were personally gone over and tabulation of cases made, but this could not be done for all the hospitals because of the great amount of time involved. The utmost variations in the type and quality of history kept was found, in the different hospitals, in only three were careful and well written histories found (Johns Hopkins Hospital, University Hospital and the Mercy Hospital). By far the greatest amount of institutional obstetrical work is done by these three hospitals and it is of interest that each one is connected with a medical school. In only one hospital is systematic, careful pre-natal work done (Johns Hopkins Hospital).

In no institution are records kept relating to the employment of midwives in previous confinement, unless some special point in the history calls forth the question, although on some of the history blanks a space is reserved for such information. In only one hospital (Johns Hopkins Hospital) are bacteriological examinations done as a routine for all morbidity cases. In this hospital's statistics there is, consequently, a far greater number of puerperal infection cases than is ordinarily inferred by the usual meaning of the term.

The five hospitals doing the most work are connected with medical schools (Johns Hopkins Hospital, University Hospital, Mercy Hospital, the Maryland General and the Franklin Square Hospital). In three the outside normal cases are seen and in these hospitals (University, Mercy and the Franklin Square Hospitals) are delivered exclusively by senior medical students. In the Johns Hopkins Hospital Outside Service, the senior medical students have always been accompanied by a physician—a member of the hospital's resident obstetrical staff, and a nurse in training. Up to the present time, the students who delivered the outside cases of the Maryland General Hospital went alone, but recently the hospital has added to its resident staff a graduate physician who goes with the student on these outside cases. No nurse attends any of these cases. In both these outside services, the delivery, if performed by the student, is always supervised by the physician. Only one hospital (the Johns Hopkins) sends a nurse on outside cases, and one has just gotten an obstetrical bag for the use of the students; formerly the student had to supply his own bag and outfit, which not rarely consisted of a piece of string and a pair of scissors thrust hastily into his pocket. Such a state of affairs surely furnishes food for thought and consideration when one realizes the infectious nature of the material medical students handle daily, and one must more than sympathize with those who are trying to raise the standards of medical education when one listens to such a statement.

Great variation was naturally found in the degree of excellence and thoroughness of these outside services—in the post-natal work as well as in the actual delivery. Perhaps not as striking a difference was found in the inside services for obvious reasons. One institution (Babies' Milk Fund Association) is doing excellent pre-natal and post-natal work, with very gratifying results. This institution works in connection with three of the hospitals investigated.

**CARE FOR WOMEN IN CONFINEMENT AFFORDED BY
HOSPITALS, ETC., BALTIMORE, MD.**

Name of Institution	Total No. of Obstetrical Admissions in 1 yr.	Mothers Living	Mothers Dead	Babies Living	Babies Dead
Johns Hopkins—					
Inside.....	453	448	5	308	15
Outside.....	436	436	0	409	25
University—					
Inside.....	274	268	6	221	39
Outside.....	300	300	0	?	?
Mercy—					
Inside.....	251	248	3	192	53
Outside.....	342	341	1	?	?
Maryland General—					
Inside.....	239	235	4	219	1
Outside.....	350	350	0	?	?
Franklin Square—					
Inside.....	85	82	3	76	9
Outside.....	200	200	0	?	?
St. Joseph's.....	89	85	4	55	0
Church Home.....	50	50	0	48	2
Hebrew Hospital.....	19	19	0	15	4
Women's Hospital.....	16	16	0	16	0
Maryland Homeopathic.....	40	40	0	37	3
St. Luke's.....	16	15	1	15	2
St. Agnes'.....	33	31	2	?	?
Provident.....	5	5	0	4	1
Mother's Relief Association..	100	100	0	100	0
Total.....	3298	3269	29	<div style="text-align: center;"> } No Record Rep'd </div>	

The estimated number of births per year in Baltimore is approximately 18,500. The number of obstetrical admissions during the year to the institutions investigated was 3,298. Hence it is seen that practically one-sixth of all the obstetrical cases in the city of Baltimore were handled by institutions—a proportion that is at once satisfactory and that should spur these institutions on to a better and more extensive work.

In only two medical schools are women admitted as students (Johns Hopkins Medical School and the Maryland Medical College).

In conclusion the following points are of interest:

1. That with the amount of obstetrical work done by the various institutions investigated, better and more complete records of cases should be kept.

2. In order to raise the standard of obstetrical practice, better instruction should be given medical students and insisted upon.

3. That with more skillful and more extensive obstetrical practice of institutions giving practically free service, the practice of midwives poorly trained or absolutely non-trained, is bound to suffer and hence to decrease proportionately as that of the hospitals increases.

4. That the class of persons who would go to a hospital or engage the services of a midwife for confinement should be educated to appreciate why their choice should be the hospital.

(I wish to express my grateful appreciation to Dr. Mary Sherwood for her many suggestions and unflinching interest during this investigation, and to Dr. Henry A. Stephenson, resident obstetrician of the Johns Hopkins Hospital, and the various other house officers of all the hospitals for their kindness and courtesy in giving me access to their records).

SUBSTITUTE AGENCIES IN CLEVELAND

By N. Theodore Miller, M. D., Cleveland

The Cleveland situation differs only in degree from that of other cities. For the year July, 1911, to July, 1912, we had in Cleveland 12,839 births reported. Of these 5,127, or, roughly, 40 per cent, were reported by midwives. However, this by no means represents the entire number, for to these must be added about 4,000. That is in each year there are about 1,000 deaths of infants under one year of age for whom no birth certificate has been filed. Multiplying this by the infantile death rate of Ohio of 23 per cent, we have in the neighborhood of 4,000 unreported births each year. A few of these are, of course, traceable to the negligence of physicians, but fully 99 per cent have been under the care of the midwife. With these figures on hand one can readily see that midwives care for over half of the labors in Cleveland.

To care for these 9,000 women we have some 176 midwives licensed by the State Board at Columbus, and in addition to these, 90 known to be practicing without a license, but managing to keep within the law. To this number we can perhaps add a few more, making in all about 275 women who practice as midwives in Cleveland alone.

The chief argument employed by the defendants of this midwife system which we have imported, together with a foreign-born population, is that the people themselves prefer midwives, and do not want doctors. To ascertain the truth of this Dr. Gerstenberger instituted an inquiry among the people handled through the Babies' Dispensary. The nurses asked the question, "Do you prefer a doctor or a midwife?" Almost universally the answer was "A midwife." He then changed the form of question, asking them whether they knew that they could obtain the services of a doctor and nurse, paying not more than they would be obliged to pay the midwife? A large percentage at once declared that they preferred the doctor and nurse, but imagined the expense prohibitive.

Infantile and maternal mortality in Cleveland is a matter of open record, and upon reviewing the midwife situation it is to be wondered at that our results are not even worse than they are. Through its Lying-in Clinics Cleveland is endeavoring to give to its poor foreign-born population, as well as to the poor of every class, a substitute for the midwife which will fulfill the minimal requirement.

The work is as yet so limited that a comparison would be scarcely fair to the midwife, since the number of cases is not large enough.

However, from those cases which have been under the care of the clinics from early in pregnancy throughout labor the figures are most encouraging. For over two thousand cases we can report a maternal mortality of 1/10 of 1 per cent, and an infantile of less than 1 per cent.

The clinics endeavor to give efficient service not only to those who apply during pregnancy, but handle without question all emergency work referred to it by midwives, or by the women who have lost confidence in them, so that we see here the results of midwife ignorance and neglect, with all of its deplorable results.

Despite claims to the contrary, the clinics do not solicit cases, for from the very nature of the work criticism must be avoided. Even those cases which do apply are carefully investigated, and if found able to pay, are referred to private physicians. This investigation is of the most careful nature, and all complaints are gladly received, and if cases are proven unworthy of free attention, they are at once rejected.

These clinics, or substitute agencies, have been organized solely for the purpose of educating the public, improving the social and physical conditions of the women which they handle, and to give instruction to men and women in the proper handling of the pregnant women. Their figures justify the assertion that as far as Cleveland is concerned, women can be taken care of with far better results than those which the midwives obtain.

SECTION ON HOUSING WITH SECTION ON NURSING AND SOCIAL WORK

Friday, October 4, 3 P. M.

JOINT SESSION

The Chairman of the Committee on Housing, Prof. C.-E. A. Winslow, of New York, presiding.

INTRODUCTORY REMARKS BY THE CHAIRMAN

PROF. WINSLOW: We are coming to realize more and more that in infant mortality we have to deal with a complex of many factors. As long as attention was paid almost entirely to procuring clean cow's milk, but little progress was made. With the discovery that human milk, and not cow's milk, was the only proper food for the baby, real progress began, and recently there has been associated with that discovery attention to many other factors. This is one of the reasons why the efforts of the last few years have been attended with such notable success. We know that the most important single factor is breast feeding, but we remember that there are some other factors, too. Two of them, infection and temperature, in particular, have been more or less clearly shown to have a bearing upon the death rate of infants. At the meeting of the American Public Health Association last week, Dr. Levy, of Richmond, presented facts to show that the infant diarrhoea in that city last summer was infectious, and was spread by flies. Infant mortality rose and fell, and rose again, without any connection with milk supply or temperature, but in close relation to fluctuations in the breeding of flies. Dr. Levy pointed out in that connection the dangers from the baby's diaper. Wherever there is an imperfect sewage disposal there is danger of fly-borne disease, and the diaper left about the room is an ideal device for exposing excretal matter in such a way that it can be carried by flies. Then there is the question of temperature, to which attention was called at this meeting a year ago, and which has been recently illuminated by the German investigators, Liefmann and Lindemann, who show, as Rietschel and others have done before, a

close correspondence between summer diarrhœa and temperature. They show that the summer death rate is of two kinds; that in the early summer there is a rapid response which is manifested among children fed at the breast, as well as those fed on cow's milk, but not manifested among children protected from high temperature; also that the disease is at this season marked by acute nervous symptoms; that it is, in fact, a sort of heat stroke. On the other hand, later in the summer there come the more typical diarrhœal deaths affecting children fed on cow's milk. The data accumulated in this country are not so convincing, as far as daily correspondence goes. The New York Milk Committee has published in its recent reports records for the two principal boroughs of New York for three years, and I cannot see any very close day-by-day correspondence in those figures, but if they are given for weeks, as in the diagrams here shown, there is a very close correspondence. The point at which these curves begin to rise is almost that fixed by the German observers as the dangerous temperature—73°. The point to which our program calls particular attention this afternoon is the problem of the temperature in the tenement dwelling as it directly affects the child. This has been studied by the Germans with a great deal of detail, but we have had no investigations of it in this country. That is why the Committee on Housing has attempted during the summer to collect statistics of this kind. In four cities such studies have been made during the past summer, and will now be reported. They show a considerable excess of indoor over outdoor temperature. In Chicago, as the report to be presented shortly will show, enormous indoor temperatures have been recorded in certain cases. In Philadelphia and Baltimore the differences in temperatures were less extreme. In the Providence data there is a significant difference in the excess temperature between the homes of the sick babies and the well babies. This is a serious matter, and one which I believe merits serious attention. There are various ways in which the effect of high temperature can be mitigated. The most obvious way is by proper care as to sleeping arrangements, clothing and bathing, etc. We may, however, have to go further than that. We may have to consider the effect of rooms in which there can be no through ventilation, and in which excessive indoor temperature may perhaps furnish a weighty argument for better housing laws. Three or four or five degrees in some cases means all the difference between health and disease. Finally, special provision may be made in babies' hospitals in the way of cooling rooms;

in the Mt. Sinai Hospital, in New York, they have rooms equipped in that way which they expect to use next summer. We may come to the time when we shall have public cooling rooms, where the babies can be brought in hot weather, as we come to realize how much more important it is to keep cool in summer than to keep warm in winter.

REPORT UPON A STUDY OF ENVIRONMENTAL CONDITIONS AND INFANT HEALTH IN PROVIDENCE

By CHARLES V. CHAPIN, M. D., Providence

At the suggestion of Professor Winslow the following epidemiological study was undertaken by Dr. E. A. Stone, Superintendent of Child Hygiene, Health Department, Providence.

For nine weeks during the summer of 1912 a district nurse carried on intensive preventive work among babies under two years of age in a limited district of the city.

While carrying on that work the nurse made a study of the environmental conditions existing about each baby, and took many temperature records of the sleeping rooms of these babies. Similar environmental and temperature observations were made by other district nurses in various parts of the city upon babies under two years of age ill for a longer or a shorter time with diarrhea.

The nurse working under the Health Department carried on her preventive work in 159 homes in a limited district of the city. This district was one of the poorer sections, with no large tenements nor many non-English speaking families, but a section in which there was a great deal of ignorance and a large amount of drunkenness. The fact that there were but nine cases of illness in infants under one year, with four deaths, and five cases of illness in babies from one to two years of age, with no deaths, speaks well for the preventive work.

The environmental and temperature observations have been tabulated in two series, always comparing the facts regarding the homes of sick babies under one year with the homes of well babies under one year, and the facts regarding the homes of sick babies between one and two years with the homes of well babies between one and two years of age. Every room temperature taken by the nurse was compared

with the official out-of-doors temperature at the City Engineer's Office, and the differences for each hour of the day, between 10 and 5, inclusive, were noted and averaged. As the number of sick babies totaled but 35, the observations tabulated deal with but 70 homes, a number too small from which to make any definite conclusions, yet we do find that in regard to the temperature the homes of the sick infants under one year averaged 1.8° hotter than those of the well infants of the same age, and 6.1° degrees hotter than the outside temperature. In the homes of the infants between one and two years, however, the few observations showed a higher temperature in the homes of well babies.

TABLE I.—TEMPERATURE DIFFERENCES

The temperature figures indicate the difference between the room temperature and the out-of-door temperature at the City Hall.

HOURS	10 A. M.	11 A. M.	12 M.	1 P. M.	2 P. M.	3 P. M.	P. M.	5 P. M.	Average
In homes of 22 sick babies under 1 year...	8.6°	7.7°	10.0°	7.6°	8.1°	8.0°	1.8°	5.0°	6.1°
In homes of 22 well babies under 1 year...	7.2°	7.1°	6.6°	....	4.0°	3.0°	0.6°	1.6°	4.3°
In homes of 13 sick babies 1 to 2 years....	2.0°	8.5°	...	....	....	0.5°	-3.0°	....	2.0°
In homes of 13 well babies 1 to 2 years....	6.2°	8.5°	3.7°	....	....	....	1.5°	....	4.9°

In regard to environmental conditions infants living on the first floor did not show as many cases of illness as those living on the second or third floors, and infants living in homes of five or more rooms did not have as much sickness as those living in homes of three rooms or less. General cleanliness and flies in the homes of the infants did not seem to have any bearing on the number of cases of illness.

TABLE II.—ENVIRONMENTAL CONDITIONS

	Floor			No. of Rooms			Cleanliness			Flies		
	1st	2nd	3rd	3 or less	4	5 or more	Good	Fair	Poor	Many	Few	None
Sick babies under 1 yr.	7	12	2	10	8	4	13	7	2	5	14	3
Well babies under 1 yr.	14	7	1	8	6	8	6	14	2	8	11	3
Sick babies 1 to 2 yrs..	8	4	1	4	7	2	6	6	1	6	6	1
Well babies 1 to 2 yrs..	4	9	...	4	7	2	6	7	2	6	6	1

The food taken by the infants showed a distinct influence on the number of cases of illness. Only 7 out of 22 sick babies were taking the breast, while 18 out of 22 *well* babies were thus fed.

TABLE III

FOOD	Breast	Breast, plus other food	Cow's Milk, modified	Condensed Milk	Patent Food	Light Diet
Taken by sick babies under 1 year...	6	1	10	3	2	..
Taken by well babies under 1 year...	13	5	1	2	1	..
Taken by sick babies 1 to 2 years.....	..	3	1	..	..	9
Taken by well babies 1 to 2 years.....	..	7	..	..	..	6

Inquiries in regard to other cases of diarrhœa in members of the families of sick babies were made, and four cases were found in the families of the 22 sick babies under one year, and four cases also in the families of 13 sick babies over one year.

The following bacteriological study of the feces was made by Mr. A. W. Sweet, of Brown University, under direction of Prof. F. P. Gorham: Forty-seven swabbings from the rectum of 44 children with diarrhœal symptoms were examined for bacilli of the dysentery group. Organisms were found in the swabs from seven children, which corresponded in all respects with the cultural and fermentation reactions of dysentery bacilli of the Shiga type. Agglutination has not as yet been tested.

REPORT ON STUDY OF TEMPERATURE AND INFANT HEALTH IN CHICAGO

By HENRY F. HELMHOLZ, M. D., Chicago

This paper represents a brief abstract of the work done this summer by the Sprague Memorial Institute in connection with the Infant Welfare Society of Chicago.

The work was started July 11th, and carried on until September 13th. During this period there were 1,374 maximum and minimum temperature readings taken, and the same number of rectal temperature readings of the babies in the various homes. The babies were under continuous observation by the physician at the Infant Welfare Station. The work was carried on in five different districts of the city, corresponding to areas covered by an Infant Welfare Station. The one in which the bulk of the work was done is situated in the North Side, nearest the lake, far enough inland so as to have every benefit from lake breezes, but apparently considerably cooler than one of the other districts. Three of the districts lie in that most congested part of Chicago just west of the river, and the last district represents the most inland—the stock yards district.

To begin, let us for a moment compare the temperature conditions in the different districts.

	T 90 or over.	Max. 95 or over.	100 or over.	Min. T 80
Stock yards.....	100	43	21	7
West Side 1.....	0	0	0	2
West Side 2.....	36	3	0	7
West Side 3.....	10	0	0	3
North Side.....	18	2		17
(1 exceptional case).....	28	5	6	47

The most evident feature of this table is the relatively large number of maximum temperatures above 90 in the stock yards district, as compared with the relatively low number of times that the minimum exceeded 80, indicating marked cooling off at night. Maximum temperatures exceed the maximum outdoor temperature by as much as 30 degrees in the district. In the North Side district the temperatures above 90 were only about one-fifth as frequent, but the minimum temperature above 80 degrees was $2\frac{1}{2}$ times as numerous. At this point it might be well to mention one of the North Side cases that was very much out of the ordinary, in 28 out of 55 readings temperatures were 90 and above. In 47 out of 55 readings the minimum readings were 80, ten times above 90, and two times above 95. The lady in this house had only three temper-

ature readings above the normal—101.6, 100.2 and 100. The contention of Reitschel that continuous high temperature, rather than intermittent high temperature, is very dangerous, is not borne out by this instance. Thirty-two cases of diarrhoea occurred in the 48 cases observed. The outbreaks of diarrhoea occurred in days with the maximum temperature as indicated by the chart:

DIARRHOEA.

70-74	75-79	80-84	85-89	90-100
7 cases	9	9	5	2
22%	28%	28%	10%	6%

This may not be a very fair way to state this, as the summer in Chicago was exceptionally cool, except for a warm week in July and one in September. In 55 instances in which the babies' temperature reaches a 100 and above the maximum room temperatures were as follows:

70-74	75-79	80-84	85-90	90-100
9 cases	9	18	10	9
16%			18%	17%

From the last two sets of figures it seems fair to conclude that in this set of infants the heat per se was not a very great factor in causing diarrhoea or fever. But it must be remembered that all of these infants were under the constant daily care of a nurse; that the mother had been instructed about the proper bathing, and as to the proper clothing in the summer time, etc. To get conditions as they are, we ought to work in homes where the light of our efforts has not reached, and once arrived we would hardly allow the conditions to continue.

THE EFFECT OF MODERATELY HIGH TEMPERATURE UPON THE INFANT

By J. H. MASON KNOX, Jr., M. D., Baltimore, Md.

It has long been known that the incidence of illness from intestinal disorders and the mortality among infants reaches their maximum in hot weather. The number of infant deaths increases from the beginning of hot weather, is greatest at mid-summer, and rapidly declines as the continuously high temperature lowers toward fall.

The explanation of this phenomenon, perhaps the most striking in the whole subject of infant mortality, is not a simple one, as might appear at first sight. Has the higher summer temperature per se a harmful effect upon the baby, and if so, can its influence be lessened? Or does the hot weather injure the infant indirectly? As, for example, through the more rapid decomposition of its food, particularly of its milk?

The untoward effects of high temperature upon the infants have been classified by L. F. Meyer, of Berlin, as follows:

1. Immediate Heat Stroke.
2. Mediate including:—
 - a A lowering of the baby's tolerance.
 - b A decrease in its immunity against disease.
 - c A less favorable course of alimentary disturbances.
 - d An increased decomposition of its milk.

Whether this classification is finally satisfactory or not, it should be a matter of common knowledge that the infant's digestive capacity is lowered in hot weather, as indeed is that of the adult. At this time the baby does not need, and cannot take over long periods, a diet of high caloric value. The failure to reduce its food in quality or quantity when the temperature is unduly high, together with the rapid bacterial proliferation in milk in warm weather, probably are important factors in the increased morbidity among bottle babies during the summer months.

The present paper is the result of a study of the outside (atmospheric) temperature and that in the homes of 100 babies in Baltimore, and is offered as an additional indication to the many we already possess that with only a moderate amount of supervision, and with clean milk, the high summer death rate now pertaining among infants may be diminished.

The facts which are perhaps of most interest have been brought together in the accompanying tables.

The babies were in homes visited more or less regularly by nurses of The Maryland Association for Study and Prevention of Infant Mortality. Many of them had been on our records as prenatal cases, and the mothers had been visited by the nurses before their confinement. No selection of cases was made except that during the periods of observation one or two very ill babies were sent to The Thomas Wilson Sanitarium.

Accurate maximum and minimum thermometers were left for a period of two weeks in specified homes, usually in the room where the baby slept. These thermometers were read by the nurses between four and six o'clock each afternoon. At this time the minimum temperature of the previous night was recorded, together with the maximum temperature of the early afternoon. These results were compared with the maximum and minimum outside temperatures for the same day, obtained from the weather bureau in Baltimore. It is to be regretted, for the sake of demonstration, that comparatively cool weather prevailed during the fortnights selected for observation.

Between July 25th and August 7th 42 cases were studied. From August 13th to August 26th, 30 cases. From August 29th to September 11th, 16 cases, and from September 12th to September 25th, 3 cases—100 in all.

PERIODS OF TWO WEEKS

Group 1	July 25th to August 7th.....	42 cases
" 2	August 13th to August 26th.....	30 "
" 3	August 29th to September 11th.....	16 "
" 4	September 12th to September 25th.....	3 "
Total.....		100

TABLE "A"—AGE OF BABIES

	0 to 3 mo.	4 mo.—6 mo.	6 mo.
Group 1.....	16	14	12
" 2.....	15	12	12
" 3.....	8	2	6
" 4.....	1	0	2
	<hr/> 40	<hr/> 28	<hr/> 32

The infants were roughly divided in three groups according to age.

A From birth to three months.

B From four to six months.

C Those older than six months, all were under a year.

The numbers in each group were forty, twenty-eight and thirty-two, respectively. The largest proportion of very young babies is fortunate, as these are known to be most susceptible to all unfavorable circumstances, including high temperatures.

TABLE "B"—DIET

	Breast.	Breast and Cows' Milk.	Cows' Milk.	Proprietary Food.
Group 1.....	21	13	8	0
" 2.....	16	16	7	0
" 3.....	10	5	1	0
" 4.....	2	0	1	0
	<hr/> 49	<hr/> 34	<hr/> 17	<hr/> 0

Nearly half of our cases were exclusively breast fed, as Table "B" indicates, and one-third additional were partly breast fed, but seventeen were exclusively bottle babies. All these received dilutions of scalded or pasteurized cows' milk, prepared in most instances at the home of the babies, under supervision of the nurses.

Proprietary foods were not given to any infants in series.

TABLE "C"—INCOME OF FAMILY

	Less than \$10 a week.	More than \$10 per week.
Group 1.....	27	15
" 2.....	26	13
" 3.....	11	5
" 4.....	2	1
	<hr/> 66	<hr/> 34

The families have been roughly divided according to total income, thus in two-thirds of the homes the entire wages of the father, or where other members of the family were employed, the entire income of the household was less than \$10.00 a week. This indicates that our investigation had to do with children living in small homes or flats, and in the narrow side streets of the city. It may be added that, with a few exceptions, all these families were able to pay from nine cents to ten cents a day for good milk for their babies, or for the nursing mothers.

One case in this connection may be cited. It was that of a premature baby weighing three pounds. The mother's condition was not good, and the breast milk was failing. She was about to wean the tiny infant when found by the nurse. A quart of milk was furnished the mother daily. and she was

helped with her household duties. Her milk returned and she was able to exclusively nurse her tiny baby through the hot weather, and thus save its life amid the most unpromising surroundings.

TABLE "D"—LEGITIMATE

	Yes.	No.
Group 1.....	38	4
" 2.....	36	3
" 3.....	15	1
" 4.....	3	0
	<hr/> 92	<hr/> 8

As indicated, nearly all of our infants were born in wedlock, and represent the offspring of the poorer working classes.

TABLE "E"—CONDITION OF THE HOME

	Good.	Fair.	Poor.
Group 1.....	14	12	16
" 2.....	17	11	11
" 3.....	5	9	2
" 4.....	2	0	1
	<hr/> 38	<hr/> 33	<hr/> 30

Condition of the home was designated as "good," "fair" or "poor" by the visiting nurse according to the degree of cleanliness and thrift prevailing. It was not uncommon to find a clean house where there was a small income. The homes represented are about equally divided among these three groups. In a large majority of the houses the nurses were able to secure good ventilation.

TABLE "F"—CONDITION OF CHILD

	Good.	Fair.	Poor.
Group 1.....	19	8	15
" 2.....	26	7	6
" 3.....	8	7	1
" 4.....	3	0	0
	<hr/> 56	<hr/> 22	<hr/> 22

More than one-half of the babies were in good condition at the beginning of the period of observation, that is: They were of average weight,, and were taking and digesting their food normally. Twenty-two are classified as in fair, and twenty-

two others as in poor condition. The latter groups include those who were below normal; that is, were more or less mal-nutritic. None of them had fever or acute diarrhœa.

TABLE "G"—RESULT DURING PERIOD OF OBSERVATION

	Improved.	No Change.	Worse.
Group 1.....	31	7	4
" 2.....	31	6	2
" 3.....	8	8	0
" 4.....	1	2	0
	<hr/> 71	<hr/> 23	<hr/> 6

In the case of 71 infants there was definite improvement, as represented particularly by increase in weight and by normal stools during the fortnight of observation. In 23 the condition remained stationary, while in but four instances the babies became worse. All of these latter were marantic in type, and continued to lose in weight. One died a few days after the completion of the period of observation.

During the first period of July 25th to August 7th there were 113 deaths under one year in Baltimore, and during a second period, between August 13th and August 26th, there were 104 deaths under one year in the city. These figures are, perhaps, a little lower than the average during corresponding periods in previous years.

TABLE "H"—TEMPERATURE

Ave. Max.	Outside		Ave. Max.	Inside		
	Ave. Min.	Highest		Ave. Min.	Highest	
75°	65°	85°	80°	73°	86°	{ 78- 92
84	68	92	83	77	95	
84	70	92	82	75	92	{ 80-100
76	66	88	80	73	84	
						{ 84-100
						{ 82- 84

The average maximum and minimum temperature for outside and inside conditions are indicated. It will be noted that there was no unusually hot weather during any of the time. The outside temperatures were generally lower than those taken in the homes. This is particularly noticeable in the average minimum readings, where the average of all readings is more than 7° lower on the outside than on the inside, and is a strong reason for keeping babies out of doors on porches, or

under trees during very warm nights. The highest outside temperature recorded was 92° F., while in two instances the thermometers in the homes reached 100° F.

TABLE "I"—HUMIDITY

	Highest	Lowest	Average
Group 1.....	90%	59%	70%
" 2.....	82%	60%	70%
" 3.....	89%	65%	78%
" 4.....	97%	63%	80%

The percentage of moisture in the air was also recorded. And it is well known that the degree of humidity determines the comfort with which high temperatures are borne. The average percentage of moisture varies at different periods from 70 to 80, the highest being 97, and the lowest at any period 59 per cent.

SUMMARY AND CONCLUSION

1. Because of the prevalence of unusually cool mid-summer weather, these results shed little or no light on the effect of prolonged high temperature on the well being of infants.

2. They do suggest, however, that the babies of the working classes can be kept well during the summer heat of moderate intensity if their rights to mother's milk, or to pure, pasteurized or scalded cows' milk, is not denied them, and the mothers needing it receive from the nurses in their homes practical instructions on the care of clothing and diet of their infants.

3. It follows, therefore, that the large infant mortality prevailing each summer is, to a large extent, unnecessary. This is a potent reason for multiplying the resources of this American Association for Study and Prevention of Infant Mortality, and every other agency whose object is to see to it that the helpless infant receives suitable diet and adequate care.

DISCUSSION

Dr. Collins Johnston, Grand Rapids: Last summer in visiting the certified milk plant of the Augusta-Victoria Hospital for Children at Charlottenburg, I found that the milk was boiled to comply with the German law. It is a fact, however, that in spite of the boiling of milk in Berlin for a good many years, the summer death rate among infants has not been lowered. This led to the conclusion that bacterial contamination of milk is not the chief cause of summer diarrhoea in infancy.

Finkelstein is of the opinion that the principal cause is a chemical one, that the epithelium of the intestinal mucosa is so damaged by the salt in the cow's milk, and the child's resistance so lowered by the heat, that metabolism is interfered with and the sugar of the milk is not properly digested.

Rietschel of Dresden has produced cases of cholera infantum in infants in the winter by simply running up the temperature of the wards without any change whatever in the food. We must, therefore, recognize heat as an important etiological factor in these cases, but the humidity of the atmosphere, I believe to be an even more important one.

Last summer in Grand Rapids it was especially hot, yet our infant death rate dropped about 50 per cent. We believe this was due in some degree to a strenuous milk campaign that was conducted throughout the year.

In some experiments conducted by Schrouder of Chicago two or three years ago it was shown that the discomfort experienced in badly ventilated sleeping cars was due more to the amount of moisture in the air than to the temperature of the car.

Dr. Fritz B. Talbot, Boston: The last speaker said he got the impression that his cases were not due to bacterial infection. We had had bacterial examinations of the stools of all sick babies, which showed that a large proportion of the diarrhoea or gastro-enteritis was of pathogenic origin. Three years ago the predominating infections were the dysentery infections. The infection last summer was much more serious than the infection this summer; so I don't believe we can draw the conclusion from the experience of any one summer. We have noticed that in very hot weather we did not have children coming into the hospital in any great numbers. In Boston we have the misfortune or the good fortune of having some winds which in five minutes will change the temperature and cool it sometimes 20 or 25 degrees. Always after such a drop the babies flood into the hospital and have symptoms of diarrhoea. We have a cooling plant in the hospital and have used it until recently. We get better results with outside fresh air than with artificially cooled air. I believe these apparatus are not sufficiently complete or good enough to make a room better than can be obtained in outdoor good fresh air. I think the point that has been demonstrated by these papers is that what the baby needs is fresh air. He wants to be outdoors to get the pure fresh air and that is as important a factor as is the temperature.

Dr. Belfeld, Chicago: This past summer we found a certain number of cases due to affections of the respiratory tract, some to overfeeding, some to faulty mixtures. That left us with a large group of cases which we were at a loss to explain. Even when these babies were receiving proper mixtures with an interval between feeding which would satisfy the most critical, still the baby would get serious symptoms of diarrhoea. We came to the conclusion that articles outside of the milk were to blame, carelessness for instance. There is no doubt that the heedless feeding of all forms of raw food—peaches, apples, bananas, berries, grapes, various forms of vegetables, pickles, green corn, herring and sausage—cause much of this disturbance. I recall one baby that lost three pounds in one day, and it was a case of intoxication. It was a question of ferment. In certain cases it took as long as five minutes to elicit from the mother the fact that she had given the baby a raw

peach. Shortly afterwards the baby suffered an attack of diarrhoea, in which the stool had the appearance of pus and blood, jeopardizing the life of the baby for a long time.

Dr. Schwarz: It is curious that in tropical countries they have no summer diarrhoea. The records in New York the last three or four years show that when the humidity was low and the temperature high, mortality increased. Late in the summer the heat is more dangerous than in the beginning of the summer, because the children have lost the power of resistance.

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THE PRENATAL WORK OF THE ST. LOUIS VISITING NURSE ASSOCIATION

By MARGARET N. McCLURE, R. N., Superintendent Visiting Nurse Association, St. Louis

The Visiting Nurse Association of St. Louis has always taken maternity cases, and prenatal instruction has been given whenever possible.

One of the chief features of our work is the interest taken by the different churches and societies in preparing maternity bags for expectant mothers. These bags contain sheets, pillow cases, gowns, rubber sheet, douche bag, and douche pan for the mother, and three complete suits for the baby. The bags are loaned with the understanding that everything is to be returned clean as soon as the mother regains her strength.

Most of our cases come to us through the doctors or some neighbor or friend, and the nurse, of course, finds many in her rounds.

Whenever a call comes in it is followed up in the home to ascertain if the home is a fit place for confinement, and if there is anyone to care for the patient between the calls of the nurse, and to see what provision can be made for the other children during the mother's illness.

If the nurse finds the home exceedingly impossible, she suggests the hospital. If the patient decides to accept hospital care, she is sent to the hospital most convenient, and makes her own arrangements. If the patient is to be cared for in the home, and cannot pay a doctor, the nurse suggests the doctors from the out-clinics, always explaining that a student will accompany the doctor and assist during confinement, and that the nurse will not be present during labor. She also instructs the mother as to diet, fresh air, regular habits, the care of the breasts and the importance of breast feeding. She talks with her about the baby's wardrobe, and the dressings, and impresses on her the importance of taking or sending a specimen of urine to the doctor.

If the patient is intelligent, and the nurse feels she can be trusted, she leaves her card, telling the patient to call her if she wants advice.

As a rule, not more than three prenatal calls are made, but if the symptoms are unusual, the nurse calls as often as the doctor in charge suggests.

After labor the nurse calls nine days, bathes and cares for the mother, teaches someone how to change the dressing during her absence, and cares for the baby.

Of the 572 maternity cases cared for in the homes by our nurses last year, we had only three deaths; 230 of the mothers were visited before confinement, some as early as the second month, the majority coming to us from the sixth to the eighth month. Two of the medical colleges send all the out-clinic cases to us for nursing care. These patients we seldom hear of until the doctor reports the delivery. One of the colleges, however, has a nurse doing prenatal work, and her position is unique, in that her salary is paid by the Bible class of one of our large churches, and she is under the supervision of the Social Service Department of the College Hospital.

Of the babies under our care 540 were living at the end of the first month, six of these being premature; 27 babies died during the first month, three being premature, and we had nine stillborn. Of the babies living at the end of the first month 393 were breast fed, 67 were bottle fed, and 80 had to have mixed feeding.

Of the babies who died during the first month 6 were breast fed, 12 bottle fed and 9 had mixed feeding.

That our work is slowly gaining way is told by the effect seen in the home and the frequent calling on the nurse for advice by the mother.

Clothing and bedding are never loaned grudgingly, but the nurses try to have the mother see the necessity of preparing for the event, and the nurse who is able to report at the weekly conference on a case she is attending for the second or third confinement, where the mother did not even see the need of preparing a few clothes for the baby when she first called in the nurse, but who at the last confinement not only had her baby clothes ready, but plenty of bed linen and gowns, is the nurse who is envied.

As a result of our work, we feel that to attempt to put the baby work in the hands of other than the regular district nurse is a mistake. The nurse knows her district, and the mothers know the nurse. To have one nurse make the prenatal calls, the regular nurse care for the patient during confinement, then turn the baby over to another nurse, makes the mother discontented.

We now give the regular district nurse the mother for prenatal care and confinement, and the supervision of the baby for one year. Heretofore we have had charge of the babies from four to six weeks; they were then left in the mother's care, and the nurse called after the advice of all the neighbors had been carried out and the baby left in a serious condition.

Now the mother has *her* nurse, who makes regular visits to the baby, oftentimes preventing artificial feeding, or if artificial feeding is necessary, sees that the mother has proper medical supervision, and the mother knows she has someone who is really interested in her own and the baby's welfare.

We are looking forward to the time when we will be able to make weekly visits to all our prospective mothers, and are already taking steps towards securing a fund to be used in providing rest for our obstetrical cases, both before and after confinement.

CAROLINE REST AND SCHOOL FOR MOTHERS

By MISS F. FREESE, R. N., Hartsdale, N. Y.

"In the education of the mother in the care of herself and her baby, we have the strongest weapon for fighting infant mortality."

This conclusion is quoted from the 1912 Special Report of the Committee for the Reduction of Infant Mortality of the New York Milk Committee, and it concerns a branch of public health work which has received much careful thought and study, has been widely discussed and is vitally important to national welfare.

There are Mothers' Clubs, Free Lectures for Mothers, Babies' Welcomes, and clubs of various sorts doing this work. There are schools for mothers, both in this country, England, Germany, France and Belgium, where the mother may bring her infant for a few hours daily or semi-weekly, and receive instruction in matters pertaining to infant life and hygiene, but it has fallen to the New York Association for Improving the Condition of the Poor to control a Mother's School that is unique in *this* country, at least, and I have seen no reports that lead me to believe that there is *any* other where the mothers come and live for a period in the school, spending the most of the day in a regular, systematic course of instruction in all that concerns child life and mothercraft.

Work with mothers, to be of the most value, must begin with the pregnant woman, and as early after the beginning of pregnancy as possible. If the cases can be gotten in the sixth month of pregnancy, so much the better. In the school just mentioned, The Caroline Rest and School for Mothers, the work begins with the expectant mother as soon as the case is reported. The nurses visit the home, note the surroundings and daily habits of the woman; they look into the question of diet, clothing, and exercise and provide for medical care if it is needed. Relief in the manner of clothing and food are provided if necessary, and as these women come from the poorest homes in the most congested part of Manhattan, it *is* almost always necessary. The visits are made regularly until the arrival of the infant, and continue until the mother is able to be out of bed and about the house, when, with her babe, she is taken to the school, and that she may feel no anxiety

about her other children, all under ten are taken with her. The husband is invited to come to the school on Sunday, and dinner is provided for him on that day. All nationalities are received. The mothers come to the school weak and almost feeble, showing the effects of poor and insufficient food, bad air, and sometimes alcoholism, and are much in need of the healthful surroundings, comfortable sleeping dormitories, three good meals daily, with nourishment between, which the school provides for them.

The children are given into the care of competent, experienced nurse-maids, and if the mother is willing, she may be relieved of all responsibility concerning them during her visit. They sleep in a well-ventilated dormitory, away from the mothers' quarters, and eat at a table by themselves, always attended by one of the nursemaids. The care of the infant is left to the mother, and it sleeps beside her in its basket bed. A competent maid remains on duty all night to see that the infants are not kept in the mother's bed longer than the nursing period makes necessary, and that they are fed regularly "by the clock," not "whenever he may seem to ask for it." The babies respond to training for regular feeding far more readily than the mothers.

For the first three or four days nothing but the care of the infant is required of the mother. She will usually, however, imbibe some of the enthusiasm of the mothers who have been in the school longer, and ask when her work is to begin long before she is considered strong enough to do it.

The day begins when the breakfast bell rings at seven o'clock. We insist upon a neat appearance at the breakfast table, and a nurse visits the dining room during the meal to see that the rules are observed. One mother not long ago wrote a letter that was given to me to read, in which she said: "We are kept so clean that it is a pleasure to look at one another." The idea may strike one as humorous at first thought, but it is really a good thing for them to have learned that it is much more of a pleasure to see a neat, clean woman than an untidy one, and we never fail to *suggest that they remember* this in their own homes, and at their own table. After breakfast one group goes to the infants' bathroom, a large, well-ventilated room, and the others to the sleeping dormitories to make their own beds, under the supervision of a nurse, who will tell them why it is better for baby to have his own bed and sleep alone, and how a bed can be provided for an infant at low cost. She will speak of the necessity for sleep, and how to prepare baby for sleep; she will

emphasize the need of fresh air in all sleeping rooms; talk to them about the care of blankets, the best *kind to buy*, and bring out many points on personal and home hygiene. The group in the bathroom have meanwhile been bathing their infants, noting under the guidance of the nurse the temperature of the room and bath, the best kind of soap to use, uses of powder, care of eyes, nose, ears and throat. Instructions are given on the best kind of infants' clothing for the various seasons, need of daily exercise for an infant, and while the bath is being given the children are examined, and physical defects, if any, noted. When each mother has bathed her infant and made her own bed the infants are fed and put to sleep in their basket beds.

Those mothers who have the bottle-fed babies then go to the diet kitchen to prepare the various formulas. The mothers are given individual instruction, and each one is taught the care of bottles, nipples and milk utensils. We have been surprised and a good deal gratified to find how few of the mothers who come to us have bottle babies. Out of the thirty mothers, the capacity of the school, we have never had more than six mothers at one time in the milk class, and it is usually composed of only three or four. If the infant is breast-fed, the mother will have this period free.

At ten o'clock the mothers hear a short lecture, or, as we call it, "Mothers' Talk," on one of the following subjects:

Infant feeding; the advantage of breast feeding.

Proper food for the child after weaning.

Summer care of sick babies.

Some things essential for the nursing mother—

Cleanliness,

Fresh air,

Sunshine,

Food and drink,

Exercise and rest.

Common accidents of childhood.

Dangers of the pacifier; good and bad nipples.

A few contagious diseases and how to recognize them.

Sometimes the period will be given up almost entirely to discussion or answering of questions. To hold the interest this instruction must be given in an informal way, inducing the mothers to feel perfectly free to ask questions or relate a few personal experiences if they wish, and, as a rule, they are interested, and ask very intelligent questions. The course has been remodeled almost completely since it was commenced, and built up around the questions the women have asked.

They have been much interested in cultures taken from the

babies' pacifier, and in those taken from a finger nail, when we were talking about the great need of early training the children to wash the hands before going to the table. A cup of gruel, with crackers, or cocoa and crackers is served during this period, and adds greatly to the sociability of the hour.

After this lecture the class in cooking meets with the Domestic Science teacher. For this the mothers are divided into groups of eight or ten, never more than ten, each group having four classes a week. The mothers gather around the teacher during the demonstrations, and are ever ready with questions, and to tell of experiences they have had along this line in their own homes. They are always interested, and often write to us about their first trial with a new dish when they go home. We firmly believe that a diet kitchen, with individual equipment, the equipment approximating as closely as is possible the equipment these mothers have in their homes, is essential to get the best results from the work in cooking. They are given copies of all receipts used in the classes.

The course consists of instruction in—

Manner of purchasing foods and care of the same.

Care of cooked foods.

Some idea of a well-balanced diet.

Variety in daily diet.

Hot and cold weather dishes.

Need of fruit.

Use of dried fruits and their preparation.

Milk; its value and ways of introducing it into diet.

Making of typical dishes to illustrate nutritive foods at low cost.

To make the work as practical as possible the same dish prepared in class is used on our menu for the day. If the lesson has been one on soups, and cream soup has been made, the children will have cream soup for dinner, and it is a little short of funny sometimes to hear the criticism of the work of our poor old cook, who has prepared for one hundred what the mothers have prepared for the first time, and for a group of six.

The dishes that are prepared in the class are always chosen with the thought of the need of a growing child, but the working man is considered, too, for there is seldom money enough to provide two kinds of food, and the wage-earner is usually considered first. When one woman was asked why she gave the baby beer, she said: "It is all we have. My husband must have his beer; there isn't money for beer and milk, too, so the baby must have tea or beer." And so it is with food; the little toddler eats what the father eats because there isn't any-

thing else. One woman was so very happy in her cooking because, as she explained, "she had learned several good ways of preparing potatoes." Potatoes were her husband's favorite dish, and though she had been married two years, she could cook them in only two ways, boiled and fried. "I won't tell him one word about it until I have put the potatoes on the table, and then he will be so glad he let baby and me come to Caroline Rest," she concluded.

Sewing comes in the afternoon, two classes each week for each group. The group that has cooking in the morning never has its sewing in the afternoon of the same day, but have the afternoon for "out-of-doors." Here, too, we endeavor to get mothers interested from the very beginning, and instead of commencing with hemming, basting and simple stitches, as we did when the classes first began, the first lesson is one on the use of paper patterns, a cutting-out lesson, and each mother is assisted with the cutting out of a garment of proper size and style for one of the children she has with her, usually the infant. The garment chosen will always be one requiring instruction in

The use of paper patterns.

Method of putting a garment together.

Hemming.

Adjustment of sleeves.

Finishing the bottom and neck of a garment.

Buttonholes and sewing on of buttons.

If the garment is finished completely and satisfactorily, the mother may have it, the child wearing it home. The mothers are interested and work hard to get the little dresses finished. Sometimes the buttonhole has to be made on another piece of cloth many times before the teacher will allow one to be cut on the dress; sometimes the sleeve has to be taken out several times, but it is all done cheerfully, and if a piece of lace or embroidery is donated, the mothers are very happy indeed, and will show you with the greatest pride "the first dress." Visitors to the school used to speak of the fact that the mothers seemed to be so idle sitting around in the solarium with nothing to do but gossip, but now they may be seen with their little dresses trying to get them ready for the teacher's inspection at the next class.

While we all felt from the very first that sewing was a very important part in the instruction such a school might give, we have been repeatedly surprised at the number of these women who know absolutely nothing about handling a needle, and if you could see them pin the pattern on to the material

for the first time, you might say that that they know equally little about the use of pins. As to using the scissors, following the line of a pattern around an armhole or neck, it is done most awkwardly at first. Let us hope that when cutting and folding are introduced more generally into our public schools, the next generation of mothers will not find garment making quite so difficult, they will be more deft in using needle and scissors.

Remodeling of garments, cutting down of garments is also taken up, and any one who wishes to make over her own garments at the school is encouraged to do so, and is given all the assistance necessary. We have tried the giving of prizes for the best buttonhole, but was not very satisfactory, and has been given up. The mothers are given patterns of all garments they have made. An exhibit of fabrics suitable for children's garments, chosen with due regard to cost and durability, and not forgetting beauty, and a model set of children's garments for all seasons, could well be used in this work.

Besides this class work, we believe the mothers imbibe much knowledge they do not consciously learn. We want every hour to give them a new interest in the every-day things of their lives. If a child falls, thereby obtains a wound, he is taken to the nurse, who dresses the wound in the presence of the mother. The nurse will explain simply why it must be kept clean, why it must be covered with a bandage, and the bandage left undisturbed, but the next day, and every day thereafter, the mother applies the dressings, always with the nurse present. The remainder of the day, and often part of the evening, is spent out of doors. We often have picnics in the woods, sometimes for the children, sometimes for the mothers. We never take both together.

The mothers take upon themselves quite voluntarily the care of the big bowls of wild flowers we try to keep in the living room and upon the dining table. Many a mother has said to me this summer: "This is the first bunch of flowers I have ever picked."

They are interested in seeing who can find the greatest number of wild flowers during the visit, and before another Summer comes the Superintendent of this school intends to know a great deal more about trees and flowers than she knew this Summer. And let me say in passing that if you think of starting such a school in the country, you must know a good deal about everything under the sun, not excepting the sun. There seems to be something about country air that makes city children and most of the mothers unusually inquisitive.

In one short morning you may be called upon to explain the relation between improper food and bowlegs; tell why the lower leaves of the sumac have turned red before the top ones; explain why certain stones are red and others grey; and tell how a katy-did may be distinguished from a cricket.

Three evenings each week some little entertainment is provided for the mothers. They enjoy dancing, they love games, real lively ones, and the radioptican, for which we have many sets of cards, is used for rainy evenings. Many of the cards used in the radioptican are chosen for their educational value, as the one on the dangers of the house fly. Others are views of the different countries, and the funny ones are not all kept for the children. Singing on the balcony is a popular way to spend an evening hour in the Spring and Autumn. The children have their parties and picnics, too, and they love their little dances as much as the mothers love theirs. A set of dancing dolls always pleases the children of all ages. Both mothers and children seem never to tire of music, and if any mother can play or sing, she is often asked to do so as we sit around the fireplace in the evening. We frequently have mothers who sing the songs of their own country very well, and enjoy doing so.

The infants and children are weighed weekly; the mothers at the beginning and end of the visit.

Almost every one gains, and this steady gain of infants and children is a wonderful argument in favor of our treatment, the best object lesson for both mothers and fathers.

One of the things needed to make our work complete is some man to organize these fathers into clubs or classes, and instruct them and discuss with them the things pertaining to the physical and moral welfare of the family and the upbringing of children. Many of them are very young, with no more knowledge of their children and their needs than the children have of law or medicine.

The length of the mothers' visit depends entirely upon the individual case and the home conditions. This makes it very necessary that a pretty full family history be sent to the school before the mother's visit begins. If there happens to be a husband who never goes home when the wife is away, and spends his time in the neighboring saloon, then the visit should be short, and the family sent home as soon as the mother is physically able to do her work. If the husband is a steady wage-earner, and there is no one who can cook his food; if he is forced to get his food in the place before mentioned, if he gets any at all, then again we should not keep the wife very long. Two weeks is probably a fair length of

time. Our object should be to make happier homes, and not to destroy happiness that already exists. If the husband is in sympathy with the work, can perhaps get his own meals, and does not mind doing so, or if he can get his food at the home of a relative or friend, then we may keep the wife for a longer time, perhaps a month. This varying length of the visits complicates very much the work of the teachers. The husband's permission should always be obtained, a definite "yes," and his interest solicited. It is very annoying to get the wife into the school, just beginning to enjoy and appreciate, and have the husband come some evening and insist on taking his wife home because "he never consented to her coming anyway," or "because he wasn't asked." If his consent has been given, if he has been consulted, as undoubtedly he should be, then he might hesitate to use these excuses anyway.

There are plenty of other excuses, as we have discovered. one man coming for his wife because the dog was sick (the baby fourteen days old), and another sent for his wife last winter because the pipes were frozen up and he couldn't get them open. His wife aptly said he was "no account, anyway," and we believed her. As he was not working, it was suggested that he come to the school, and get some work in simple plumbing, but he did not come, and the poor, half-starved wife went home.

I believe the visitor who collects the cases should take some care to arrange, if possible, that these husbands have some place to get a warm meal when they come from work if they are not the kind of men who can cook for themselves, or there is no relative at hand. We have often been impressed with the generous spirit these women manifest toward each other, and probably, in most cases, some family in the same house would give the husband his warm dinner or breakfast for less than the saloon would furnish it, and be glad to do so while the wife is in the country.

Training these women for domestic service has been one branch of the work that has been of interest during the Summer just passed. Most of these women have homes to which they return, but there is also the deserted mother with a small baby to support, and we have found that it is never difficult to find a comfortable home for the mother with her baby if she has had our training. We see a good deal of them while they are in the school, live very close to them, as it were, and we can easily discover the hardworking, deserving woman who makes the good steady, reliable helper in the home. We have had more requests for mothers than we could

grant. At present a little colony of school mothers live in our vicinity, and come home to the school frequently on their free afternoon, looking upon the school as a place where they are always welcome. The work of collecting the cases for such a school, deciding which cases are suitable for such instruction, and the follow-up work are as important as is the work in the school. The ideal mother is, no doubt, the young mother with her first baby, if she has begun to realize the gravity of the situation, and has felt the problems of house-keeping.

Our most gratifying results have been with cases of this kind. One young mother of eighteen came to us with a fourteen-day-old baby for the usual visit. On her second Sunday the nineteen-year-old husband came to see his family, and was taken over the school from attic to cellar. When he was leaving he came to ask how long his wife was to stay, looking serious and thoughtful. "How long may she stay?" was our reply to his question. "Well," he said, "Margaret thinks she has learned here how to cook and keep house. We have never had enough money so that I could do for her and the baby as I would like to have done, but there is a better job at my place, and the boss will give it to me if I will spend two weeks learning it, but during those two weeks there will be no pay. Now if Margaret can stay two weeks more, I thought I'd try it." We agreed to keep his family two weeks more, and the two weeks lengthened into four; then the wife, having gained eight pounds and the baby three, went home to a little apartment of their own, with a fair income if they keep well, and a much better knowledge of right living.

There are numbers of such cases among our young mothers. If it happens to be a young mother to whom the baby was not very welcome, it will be a good place for her, for we are told it only needs suitable soil and congenial surroundings for the growth of affection, and both are provided at the school.

We have found some good material in mothers of two or three children. Sometimes there are two children before the mother begins to feel the need of more information; sometimes one will slip away before a mother realizes her ignorance, before she begins to think for herself at all. All these are good cases for such a school. It will not be necessary for me to tell you why the mother of four or five or six children is not good material, especially if the children managed to survive the soothing syrup, pacifier method, and have come through fairly healthy in appearance. Such a school will be lost if

it is made a clearing-house for all the cases of maternity that one feels sorry for, or that one wants to send to the country.

The work of following up the cases is of the greatest importance. The mothers will need some help in applying the principles they have been taught in the school to their own every-day surroundings, and they should not be allowed to think that our interest ceases when they are put aboard the train for home.

If they do try to apply this teaching at home they will very probably want to ask a few questions, and will feel the need of further help in a number of ways. They will find points that have not been clear to them.

The education of these mothers requires a well-balanced combination of both home and school instruction to produce results, and some of it as necessary *after* the school work as *before*.

If the cases are chosen with an intelligent sympathy for and interest in the work; if the teaching is done by teachers interested and believing in their work, and the cases are systematically followed up, there is no estimating the breadth of the work or the good these schools may do. The same teaching methods have been used with the mothers of all nationalities.

Out of a total of 472 mothers admitted to the school during the year there have been

Italians	93
Jews	11
Irish	69
English	15
German	23
Finnish	11
Swedish	9
American	241

This classification has been made according to the country in which they were born and spent the early years of their lives.

The work with the Italian mothers has not been very encouraging, especially when they have not been able to understand our language. The Swedish and German mothers have been most interested and more responsive to our work as we see the results in our school. Our American mothers come after the latter.

England is justly proud of its schools for mothers, and there are very interesting reports of the work they have done. Sev-

eral of the English schools were opened the same year that ours at Caroline Rest was opened, 1907.

In these the mothers visit the school daily, or certain days weekly, bringing the infant with them, the work all supplemented by careful and systematic teaching in the home.

The St. Pancras' School is associated with the St. Pancras' Day Nursery and the St. Pancras' Nursery School.

The activities of the school embrace the period from the very beginning of pregnancy to the compulsory school age of the child.

The objects of the school are:

First—The promotion of maternal health and the improvement of the capacity of mothers for the suckling, care and training of their infants and young children.

Second—The prevention of infant mortality and sickness, and the promotion of the health of sucklings.

Third—The prevention of mortality and sickness from infectious diseases and communicable disorders, and the promotion of health among babies.

Fourth—The prevention of physical defects among children before entering schools to avoid the necessity of having to remedy them at a later period of life.

The Darwin Mothers' Club, in Lancashire, England, is governed by a committee of ladies, representative of the religious bodies of the town. The objects of the club:

First—To give instruction in infant feeding and rearing.

Second—To organize a fund—raised by the fortnightly payments of the members—to supply nourishment for the mothers in time of need, or milk for the babies.

There is a general committee, whose work is:

a To look up mothers who have absented themselves from the fortnightly meetings, and to collect overdue subscriptions.

b To cook necessary nourishment for the mothers (who are unable to have it cooked for themselves) at the time of confinement.

c To help at the fortnightly meetings.

The mothers meet fortnightly on Saturday afternoons in the lecture hall of the public library. They must attend at least once a month, and the subscription is one penny a fortnight. The money so raised is to help those in need, but a member must have belonged to the club for three months before such aid can be given.

Maternity bags are loaned to the members under certain conditions, the fee for which is one shilling.

The lectures given to the mothers include:

Infants' food.

The mother and child.

Epidemic diarrhœa.

The care of healthy children.

How to feed baby.

How to feed baby after weaning.

Practical demonstrations are given in—

Cookery.

Compress and fermentation and applying.

Poultice making.

How to wash and dress baby during the first month.

Cutting out and making of little garments.

The New York Milk Committee is doing similar work with mothers in connecton with their milk stations, though they have not taken up quite so many subjects. From these reports can be seen how easily this work can be combined with the work undertaken by Day Nurseries, Milk Stations and Mothers' Clubs.

A school for mothers is not a hospital for sick babies or children, and if it undertakes that work, it will ultimately lose sight of its main purpose.

Careful and complete records should be kept in the school, and a report of the school work should be in the hands of the visitor who is to do the home visiting if it is not done by the teachers at the school.

The class work, the sewing especially, will show many women in need of glasses. The daily inspection of the children will show numbers needing dental care. This is also true to a sad extent of the mothers, and we look forward to the day when a dental clinic will be added to our school, and we may send the mothers home with clean mouths, the work perhaps continued in the city. Tooth brushes are given to each mother and each child when they come to us, and they are allowed to take them home, with the promise of another one if they write to us when the first one is worn out.

Many charts and pictures are used to supplement the work in the classroom. *Charts* illustrate the size of a baby's stomach at the various ages, and show the relative food value of the various food products.

Photographs and postal cards of many kinds can be used to illustrate—

Dangers of the house fly.

What harm may be carried by the baby's pacifier.

A miserable baby sucking from a long-tubed bottle.

The tight roller binder.

Various stages of the baby's bath.

A rickety baby with its crooked legs.

Demonstrations are given frequently in connection with the classwork.

Conclusions:

To produce the best results the work with mothers must begin with the expectant mother, and as soon after the beginning of pregnancy as possible.

Careful reports of family conditions must be sent to the school with, or preceding, each case by the collecting office, that the Superintendent may judge with some understanding of the length of time the mother may remain away from the home.

The teaching must be done in an informal, free-and-easy way, never forgetting the limitations of the homes from which these women come.

Systematic follow-up work is essential to produce any results at all.

THE PUBLIC HEALTH SCHOOL NURSE AND INFANT MORTALITY

By JOHN H. LOWMAN, M. D., Cleveland

At present the public health nurse in the school is not closely enough associated with the family to have any direct influence on the babies. Her office is too specialized and too limited in scope—too restricted in practice to modify the infant mortality problem except in a general way as will any great health movement. In order to utilize the great body of nurses and social workers for this end it may be necessary to revert to the system of friendly district nursing of the earlier nurses' associations and thus run counter to the recent idea of particular nurses for particular kinds of work, or else it may be found advisable to specialize still more finely the various phases of children's work and have many nurses visiting in the home. At present the baby is reached only in exceptional cases, and only in particular phases of these exceptional cases. The question can be solved only abstractly, unless one considers the nurse, the family, the child and the municipality. The social problem is a single problem with many variants, and one can expect only a partial solution of it if he touches but one part of it, just as one can hope to determine the moral quality of an act only by knowing the feeling, desire, motive, will and consequent of such an act; motive alone, will or consequent alone can never decide the moral quality of conduct. It is the whole character, the whole self and not a part which must be taken into consideration, and so in any movement for social betterment, the whole question must at least be kept in view. It goes without saying that one must be enthusiastic and earnest in his special work; he must be interested intensely, but this interestedness must never cease to be a "disinterestedness." It must never be so circumscribed that it does not constantly and actively appreciate its intimate relationship to the whole social movement.

An organization can and should be used for other purposes than its own immediate ends. Its activities are always interchanging, always exchanging values, for its main purposes are in unison with those of many other bodies. It is as if the social body was a living body, where one member ministers to another. Moreover, this is really so, for all social movements and institutions are but exterior manifestations of man's character as a social being, and should have

high and harmonious aims. A disinterested interest is, therefore, one of the highest elements in all social movement. The spirit of extreme specialization comes from work with the inorganic world where there is no life. There the laws are known and fixed and facts are more easily observed, more definitely established, more easily classified and explained. The science of inanimate things is more exact and is much nearer the mathematical or abstract sciences. The study is attractive because work and time are less apt to be lost. But the instant one touches life problems there is confusion, complexity and uncertainty, for the unforeseen and unforeseeable are constantly happening to disturb our data; and, again, life especially among sentient beings makes an intimate co-operation which nowhere else exists, and extreme specialization is less fruitful, and, indeed, more inclined to fall into error. In any forecast of social improvement breadth of vision and energy will count more than funds, and one ought to be able to determine in some degree the direction this energy should take.

The growth and development of this Association is an example of what rightly directed energy can accomplish. Its life has not been long, but its force has been great, and in a very short time it has aroused interest and enthusiasm in the great child question. To be sure, this question has always been a universal question, but the world has not been aware of it in the way it now is since this and kindred associations have brought their energy to work upon it, and have focused the widely diversified and hitherto inaccessible knowledge upon it, and pointed the ways in which allied and subordinate agents can effectively move. To meet the infant question adequately from the nursing standpoint there should be one central controlling body—a nurse bureau if you will—possessing at least influence and, perhaps, the power to supervise and in a general way co-ordinate the work. Naturally there would be subdivisions of the nurses, but the extent to which such subdivision should be carried could be decided by such a bureau. The moment one group, say the school public health group, departs from the central organization and becomes independent it loses the force that numbers give, the inspiration that comes from kindred but different spirits, and the opportunity of cultivating that disinterestedness which controls untamed interest. In a word, the balance is disturbed, and the common end which all are seeking by various avenues is less clearly realized.

All this is in accord with the fundamental principles which govern the moral and economical conditions of the human

race. It is the realization of the common good as an end which is the gauge and rule of conduct. It is said by some to be the standard, and this standard is satisfied by the mere conceiving and performing of some act that leads to this end. What is true of the individual should be true of institutions, but this, of course, is impossible, because codes, rules and constitutions are composites of many minds and not the exteriorization of any one mind, and must necessarily be more imperfect.

There may be, and in several communities there now are, directors of child hygiene who have a thorough understanding of the whole movement, and who occupy official positions in the municipality. Such men have a splendid point of vantage. The director must have his bureau of nurses. This may be self-constituted, and if this self-constituted body has time, dignity and experience behind it, it will probably be more efficient than any municipal nursing corps. The manner in which the nurses who are marshalled by this bureau will reach and know the child and be able to influence the parent must be worked out in practice.

We will find ourselves constantly diverted from the main issue by such subsidiary issues as means and training, but we need not fear that there will be a lack of energy, for sufficient is at hand if it can be aroused. Under the best of circumstances, however, there can only be a limited number of nurses, though even if there were enough of them to satisfy a reasonable demand we would still have to ask ourselves to what extent we should encourage the entrance of more than one nurse into the home of a family.

It certainly is unwise to multiply such visits when one visitor is enough if she is efficient. Aside from dissipating means and losing valuable time, it has a distinctly demoralizing influence on a family, and minimizes the influence of each individual nurse, and confuses the ideas of the mother. Whatever plan is finally adopted must provide for the elimination of this multiple evil—for evil it is.

There are now four large classes of public health nurses, viz.: district nurses, school nurses, tuberculosis nurses and nurses of the department of child hygiene.

In addition to these groups, there are maternity nurses, general dispensary nurses, inspecting agents, associated charity workers and philanthropic society visitors, all of whom have, more or less, the opportunity of entering the homes of the poor; very few of these touch the infant mortality problem directly, but the work of all has certainly some bear-

ing upon it. The question is, could they not all have more influence? The director of child hygiene will, through his agents, come in close contact with the infant, but mainly, from pressure of circumstances the question of this care is still largely a question of the diet of the child. The personnel is so limited in number and the duties so onerous that there is time only for a very short visit if twenty visits are made in a day, thus the contiguous and often portentous social problems are missed.

The tendency of the school nurse as urged by the superintendent of the school is to see that pupils sent home for this or that reason return as quickly as possible; and it is remarkable how the percentage of school attendance has increased under her supervision of illness among school children. The maternity nurse would not dream of noticing a child more than a few days old. Thus the tendency of high specialization is to accentuate the particular and to dwell upon it. This is hazardous, for this particular is probably only one symptom of a great social disease.

Even the public health records of deaths are only one of the indications of misery, and may be misleading, for it has been shown in tuberculosis that the more widespread the disease the lower the individual case mortality, and the more limited the disease the higher the individual case mortality. This is probably dependent on a gradually increasing immunity in communities where tuberculosis has been a long existing scourge, and also explains the tuberculous holocaust among the American Indians and the Polynesians. Thus it follows that in this instance at least the morbidity statistics would have high value in determining the extent of the disease. A low mortality is perfectly consistent with a widely infected people. Thus the special hunt of the special nurse, though effective in detail, must be limited in scope, as far as the common end is concerned, unless it is combined with a wide outlook.

The value of the trained medical worker or public health nurse in the home is determined not alone by her special duties, but by her general knowledge of the whole social problem. If the school nurse continues to do no more than she does now, her energy is restrained and her general usefulness much restricted. Some would district a city, and have one nurse responsible for the nursing of the district. If this were found impracticable because of insufficient special training of many of the nurses, the districts could be slightly enlarged and two nurses placed in charge, one to do general district

nursing and one for what might be considered special problems. The district nurse could gradually take up the special problems, and in time be competent to carry an entire district. This was the early practice of the nursing orders, and is still in a measure advocated.

District nursing is still a great force, there is a logical place for it and it must never be abandoned. To meet the exacting requirements of special nursing an effort is now making to train a few nurses in all branches so that they will be adequate to all demands, and then to place them in trial districts. The outcome of this experiment will be watched with great interest. It requires a two years' school training, a year's hospital training and a year's post graduate work. Such a nurse could carry school, district, tuberculosis, and babies' work.

But to come back to our school nurses from whom we constantly are led away because of a certain confusion of the present system and because the emergencies of the hour and the needs of the home have led many to believe that a modification of the present plan is necessary. Ten years ago a physician of Ghent organized, in conjunction with a small general dispensary, a class of girls into what he called his Little Mothers' class. They were taught orderliness, which is, after all, the fundamental basis of education; orderliness of thinking, orderliness of conduct, orderliness of school, and of home. They were taught to wash and dress babies and their young brothers and sisters, how to help their mothers, how to stand in the mother's place and assume responsibility when the mother was absent. In all homes where the work devolves on the family alone the girls are all pupils, for necessity has already taught them many of the household arts and ways; they can cook, can sew and tend the baby. This is particularly true in the rural districts. But this report comes also from the country towns surrounding the great civic centers. The physique of the girls in the country towns is not equal to that of the city girls who spend their summer near them. They are often overworked; if however, they learn to work in an orderly way their work will be easier and more quickly done. If these little mothers can be taught the general care of infants, the general rules of feeding and dressing, and particularly the great value of regular hours and rest for the baby, a valuable contribution would be made towards combatting infant mortality at least! If each school nurse could have an organized body of these little helpers at her command to assist in a very limited way in the school dispensary and to

report to her the condition of health of the younger children of the family, another weapon would be in the hand of the nurse. This is not demanding too much, the schools have the right to know when sickness invades a family; the school nurse should have certain hours when she could investigate such illness and if desired, direct what measures should be taken as to other nurses or general measures in order to meet it. Whether time, opportunity or place is at hand for the school nurse to undertake such work is a detail for the director of hygiene or the bureau of nurses to work out. It would certainly break the monotony of the school nurses' life and open wide vistas of future possibilities and I believe would be an agreeable variant of the daily routine.

It is one of the duties of the school nurse to detect contagious disease among the pupils in her district; such pupils are not allowed at school and go home. We have not yet reached that grade of development when they can be sent at once to the contagious disease hospital; such hospitals are not large enough in the first place, and but few mothers would permit such drastic measures even when other children were exposed. When, however, a school nurse suspects or discovers a case of contagious disease she should report it to the board of health and visit the home once at least, for purposes of observation and advice and in the case of *one* disease at least for the purpose of giving special precaution. In the first year of life, whooping cough has its greatest mortality. It is quite fatal to young infants and every precaution should be taken to safeguard them. It is highly presumable that by the time the nurse knows of the case the children in the home have been infected or at least exposed. But even in that event the nurse who has knowledge of the fact that whooping cough is in the house, in the tenement or in the neighborhood should notify the mother and protect the infant by forefending the grave malady as far as is in her power.

Kirchner's statistics show in the first year of life, 83 deaths from whooping cough, 34 from measles and still less from four other contagious disease, in 10,000 living people. By these simple measures alone of reporting the cases of whooping cough and informing the mother of the danger to her infant the school nurse could materially aid the cause of infant mortality, she could inform the mother not only of the high mortality of the disease among infants, but of its marked contagiousness, and of the fact that the contagion can be carried by the clothing, she could urge the mother to watch for the early symptoms of cough in the young infant

and impress upon her the necessity of unusual care of the infant which has been exposed, and also the great importance of avoiding exposure if whooping cough is in the immediate neighborhood. In the second year of life measles is more dangerous than whooping cough. Measles has a mortality of 36 and whooping cough 28 in 10,000 living. In the third year whooping cough ceases to be dangerous. Mothers should be warned by the school nurse of both measles and whooping cough for the seriousness of neither is understood by the ignorant poor, and there is no other source from which this information is likely to come, except through the school nurse. I see no reason why the school nurse should not know whether there are any infants in the families represented in the schools of her district. There is every reason why she should know and keep a record of them and send out her danger signal when necessary. Being thus in at least long distance communication with the babies of her district the school could, through the little mothers, find out what the babies have to eat. She could learn whether the mother nurses her baby or not. Milk is a rare and costly article in the families of the very poor. If the nurse finds through direct or indirect inquiries that the baby is not being nursed, she should send the district nurse to investigate the reason why. If she discovers that cow's milk is wanting and the baby has improper food she should make it her duty and have the energy to fulfill her duty by reporting this fact to the district nurse, who would best know the proper machinery to put in motion. The school nurse should keep a record of all the babies in her school district and notes of what she knows about them. By this means every baby in a large city could be brought under some supervision. This would entail but very little additional toil on the nurse. This method is both natural and simple; the school nurse is known by the mothers, she is in communication with them through the children and occasionally visits them in their homes. It is very natural for her to know of the presence of a baby in the house and to make inquiries about it. Hence her information comes by the most natural channels and is certain to be more effective than a more formal method instituted by formal officials sent out by the director of hygiene from the city hall. It must never be forgotten that there is always a form of armed truce between man and the state. The rights of men were originally individual rights. Some of these, particularly taxation, have been usurped or at least taken by the state, and some may say they have been conceded to the

state. They never have been absolutely relinquished by the individual as instance the American revolution or the passive resistance now conspicuous in England. Thus any new means for social betterment must never appear to run counter to individual right. The conservatism of the Latin races is proverbial in this particular and is a serious obstacle to their social development. This plan would gain the end desired without any antagonism, also it is in accord with another principle, that is to use existing methods and means rather than invent new ones when possible. Again the effect on the nurse herself is not to be overlooked. It takes her away from her routine, broadens her views, increases her general outlook and breaks down her specialization. A nurse is not prepared to specialize, she is not broadly trained enough to specialize. It requires a long discipline and high training to specialize successfully. Her social equilibrium is too easily disturbed. Her emotional interest, her very devotedness and concentration turn her head. Moreover, she is only specializing on a superior officer's dictation, who may or may not be a specialist. To specialize with profit to one's own character one must specialize on one's own initiative, otherwise one's mind is like the machinist who feeds a machine with a bar of iron to make nails from morning to night. Koch soon after the discovery of the tubercle bacilli formulated with the prescience of genius three laws for the eradication of tuberculosis. The first one we can apply here to school nurses. That law was, "find the cases." We can formulate that as "find the babies," and this can be done through the Public Health School Nurse.

DISCUSSION

Dr. S. J. Baker, New York: Dr. Lowman made the remark that the school nurse should look after the baby in the home. This has been done in New York City for three years. The school nurse does a large part of infant mortality work. The school nurse in connection with the school work also refers babies to the milk stations. I feel that there are no more valuable public officers than the school nurse and the tuberculosis nurse. Their work deserves the highest credit. And they have demonstrated that it is possible to reduce infant mortality to a great extent in the last four or five years. The death rate among the babies under the New York District Nurses last summer was 1.5%. In the most crowded district the death rate in the population under the care of the nurses from the milk station was slightly higher. This lowering effect on the infant death rate has been due to the work of the visiting nurse and the doctors, and the allied agencies which care for approximately 10,000 more babies. It has been

due to the preventive work that has been done by these agencies that the death rate has been reduced from 160 in 1907 to 130 per thousand. For three years we have had school doctors lecture to public school girls. We have groups of girls in "Little Mothers" meetings. The nurse has charge of the children. They elect their own president and secretary. They have weekly meetings during the spring and summer; and are taught the details of baby care. We have a definite course of study for them so the interest may be kept up during the summer. Each girl has to promise to do each day something to help the mother. She has to keep a diary and present it at the weekly meeting. During the last two years we had each summer approximately 20,000 members. And they are not only taking better care of their little brothers and sisters, but they are passing the knowledge on to their mothers, and are being instructed in the most essential characteristics of a useful and good mother of the next generation.

EDUCATIONAL OPPORTUNITIES OF THE DAY NURSERY

MISS MYRN BROCKETT, Chicago

The following paper is based upon four years' experience at the Mary Crane Nursery, a Hull-House building, which is conducted and supported by the United Charities of Chicago. It deals, in part, with what has been done at the nursery, and also with its plans and ideals. This nursery has had an unusual opportunity to develop and express day nursery ideals. The building is well planned and suitably equipped for the work. Its relation to Hull-House immediately established it in the confidence of the community. Moreover, its affiliation with the United Charities has put it into touch with a large group of young girls and mothers who are in need of the sort of training that can be given in such an institution, and also has given to the nursery in a special way the cordial interest, advice and co-operation of the splendid group of directors and workers of that organization.

When the family is deprived of the father's support, either through his death or because he is ill or otherwise incapacitated, so that both the care and support of the half-orphaned children falls upon the mother; when the mother's income does not permit her to stay at home, or even to afford a paid worker in the home; when, moreover, she is brave and devoted enough to undertake this double responsibility, the day nursery is called upon to give her relief in the form of care for her children during the hours that she is away from home at her work.

The importance of proper physical care of the young child in itself as a social factor cannot be overestimated, and the day nursery which provides such care is doing a most valuable and admirable work. In the doing of this work, however, other opportunities present themselves, and the training of children in proper habits (as of eating, sleeping and play), of the older nursery children in the kindergarten, and of the so-called "nursery graduates" in clubs and classes, has become a recognized nursery function, and is now finding expression in most of the good day nurseries of the country.

Further, the social worker in the field is realizing that the nursery matrons and nurses, because of their interest in the children and their daily intercourse with the mothers, are

getting an acquaintance with the mother and the family situation which an occasional visitor cannot hope to attain. Hence, the social worker is advising with the day nursery worker as to the family situation and its treatment. This co-operation is of value not only to the field worker, but to the nursery worker, as it broadens her vision and tends to make her work more truly social and constructive.

As the hospital, with its corps of trained physicians and nurses, and its equipment adapted to its special purpose, for many years has recognized its opportunities for the training of nurses for the sick, so the day nursery is arousing to the fact that the activities involved in the care and training of the young child left to its care, afford fitting material for the education of children and women along those lines which are fundamental and essential to them as mothers and homemakers.

In the day nursery the young child spends an average of ten hours per day, six days per week, through the entire year, aggregating about six times as much as the school child spends in the public school room during the course of the year; and the nursery child who goes to school, even on school days, spends as much time in the nursery as he does at school, in addition to which he spends his Saturdays and vacations. Is it not fitting that these hours should be so planned and directed that they shall count to their utmost in the preparation of the child for successful living?

Every well-conducted day nursery includes in its staff a physician, a social worker, a nurse and a household economist, although frequently in the smaller nurseries the social worker, the nurse and the household economist are represented in two, or sometimes only one, individual. If the nursery work is to be really well done, these must be intelligent trained workers, who are capable of realizing not only the importance of high-class work with children, but also the value of the training which comes through the doing of this work. Such workers are especially suitable interpreters of this material to the students.

Further, the nursery provides an environment well adapted to practical educational ends. It is like the home with a large family and meagre income; each member participates in the work, and each one sees that his contribution is real and of value. And, as under the supervision of a wise and sympathetic mother, the child finds pleasure, not only in the fact of accomplishment, but because he is serving those whom he loves. Moreover, these activities furnish happy expression to the abundant energy of the child, and almost solve the

problem of discipline. In their life together the children learn unselfishness, consideration for others and courtesy. In helping in the work they gain skill and form habits of helpfulness. If you have watched the children from three to nine years old as they help in the morning preparation for school—bathing, combing and dressing themselves and the younger ones—or if you have seen them at dinner, serving with abundant care the soup and bread, you will realize there is real joy in the service, as well as training in efficiency. In their little parties, their clubs and classes, sewing, cooking, dancing and singing, they acquire accomplishments and learn the etiquette of more formal social intercourse. That this training is accomplished through the nursery life was illustrated this summer, when thirty-one of our nursery children were sent to a small town for a ten days' outing, where they were cared for in the various homes of the community. At the end of the ten days I went to bring them home, and found the town quite aroused concerning them. The minister had preached a sermon, saying that all who had these children were agreed that they were remarkable children—helpful, polite and accomplished even above their own children. Therefore, he concluded their school must be twenty years behind the Chicago schools. Naturally, some of the citizens took exception to this criticism of their schools, and learned from the children that it was in the nursery, and not in school, that they had learned these things. And one of the prominent citizens came to me and asked: "How can we get that training for our own children? Do you advise a day nursery?"

At the close of the day, when the children return with the mother to the little home, eager to show her how well they can help, that which they have learned during the day finds expression in the home life. Thus has been brought about not only the training of the child, but a bettering of the home. Not long ago six little children of the organ grinder's family, found sitting in the home in filth almost unbelievable, were brought to the nursery and given a few months' care. A subsequent visit revealed not only cleaner children and a much better kept house, but where before one dish and a few spoons had sufficed to serve the family meals, eight tin cups and eight spoons were now carefully set out on the table three times a day, and under the supervision of the twelve-year-old girl, the meals were served with the preliminary blessing and all the formalities of the nursery table.

And the mother who comes twice daily to the nursery to bring and take away her children may find help in this relationship. She finds her child in a room which is clean and

attractive. She finds the child also clean and attractive, as well as obedient and happy, and she seeks to bring about similar conditions in her own home. Moreover, the mutual interest of the nurse and mother in the children brings them into close relationship, and the sympathy and advice of the nurse may mean much to the mother in helping her in her difficult problem of the management of the home and discipline of the children. It is especially in this close relationship with the home, both through the children and the mother, that the day nursery offers educational advantages superior to those of other child-caring institutions.

Although the children help in the work of the nursery, this fact by no means eliminates the necessity of older workers, and to the young girl emerging into womanhood the work is especially adapted. The child spirit of play, the newly developing maternal and home-making instincts here find natural and adequate expression. The children give sympathetic response to her mothering, and appreciate her genuine pleasure in their play. Their recognition of her importance, their open admiration for her charms and superior accomplishments give to her that gratification the lack of which might lead her to seek more dangerous companionship.

We have found our work with young girls most interesting. As a rule, they have been sent to us as "problems," either physical or social. Our first thought has been for their physical care. Those who need it are given a rest hour each day, which is spent in the open air on cots. If they are not well, they rest for a longer period. We give them time to go to the free dental clinics and have their teeth put in good condition—when necessary, glasses are provided through the proper agency, and occasionally special treatments, as of nose and throat.

Under this care Marie, a little girl of fourteen, who had formerly attended one of the open-air schools, gained twenty-two pounds, or one-third of her weight, in three months. She wanted to work in a factory at \$3.00 per week, but the physician of the school said she was too ill to attempt any such work. A visitor of the United Charities, finding the family income inadequate, and feeling that help must be provided, sent Marie to us last November for relief work at \$3.00 per week. Her physician now pronounces her well and able to go to regular work. At the same time that she has been gaining her health she has become remarkably efficient as a nursery worker, and we expect soon to place her in a private family as a nursery maid, where she will earn \$6.00 per week, with living and with increasing pay as she advances in expe-

rience and maturity. Her training has consisted of helping in the care of infants and young children under the supervision of the head nurse, and special lessons in sewing, cooking and laundry work. She has also assisted in the dispensary, and attended a series of lessons and talks given by the doctor and the nurse.

We are now enlarging the scope of this work. The outline of the training is as follows:

I. The care of the child.

- a* The *theory* of nursing
- b* The *normal* child and its physical and mental development
(Practical application in dispensary)
- c* The *need* of the normal child and how to supply them
(Practically illustrated in the nurseries)
- d* The *environment*, nursery, etc., and its care.
- e* The *care* of its *body*, bathing, clothing, feeding, rest fresh air, exercise, etc.
(Practical application in the nurseries)
- f* The *mind-training* in physical *habits*, play, etc.
(Instruction in kindergarten and nursery)
- g* Planning and preparation of food (Infants—young children)
(Instruction and practical work in diet kitchen)
- h* Planning and construction of *clothing*, its care and repair
(Instruction in sewing room)
- i* The washing of flannels and diapers, fine ironing
(Taught in laundry)
- j* Emergencies and minor ailments
(Illustrated in the dispensary)

II. Elementary bacteriology.

- a* Bacteria defined and classified as harmless or disease-producing, conditions of growth and development, functions, results of development, agents for destroying
- b* Simple methods of sterilization
- c* Simple consistent aseptic technique
- d* The distribution of infection, purposes and method of consistent isolation and fumigation

III. Hygiene—Preservation of health

- Household—Practical work in kitchen and bathroom
- Personal (cleanliness, clothing, diet, physical habits etc.)
- Infant (details of its special needs)

Practical work in nursery

Elementary physiology:

Circulation, respiration, digestion and elimination, with special emphasis on their relation to hygiene, nursing and habit-forming

IV. Ethics:

Self-respect, dignity of efficient service, manners, etc.

Practical application in the daily routine)

This is to be supplemented by a short general course in Household Economics.

The house—selection, furnishing and care and sanitation.

Food function:

Selection and care.

Preparation.

Diets.

Clothing, buying, making and care. Girls to make their own uniforms and aprons in sewing room.

Laundry work:

Girls to do their personal laundry, work in nursery laundry under instruction.

This course, with suitable modification, will be given, first, as a training for nursery maids; second, to kindergarteners, or other teachers who wish to specialize in child hygiene and the care of the child in the home, or to young women as a preparation for home-making.

It is evident that the care of the infant under the supervision of the nurses, together with lessons in cooking, sewing, diet and household management, presents suitable interests to the eager mind of the expectant and the young mother. Feeling this fitness, we have offered a course of training for pregnant women and mothers with young babies. They spend two or three days per week at the nursery, from nine o'clock to four o'clock. If there are older children to be cared for, they are placed in the nursery, that the mothers, free from care, may devote the day to rest, recreation, and to the training which is provided for them.

The schedule is as follows:

9.00 to 9.30	Lunch
9.30 to 10.00	Light general work in kitchen, cleaning of bathroom, etc.
10.00 to 12.00	Sewing room
12.00 to 1.00	Dinner, lesson in household science
1.00 to 1.30	Recreation, singing, games, etc.
1.30 to 2.30	Rest on cots outdoors
2.30 to 3.00	Baths
3.00 to 3.45	Instruction by nurse and doctor
3.45 to 4.00	Lunch
	Home

The object is two-fold—to give them special care and feeding, so that they will be in fit physical condition for motherhood, and to instruct them in those things, a knowledge of which they need as mothers and home-makers. The domestic science teacher visits the homes to encourage the mothers to apply there what she has tried to teach them at the nursery, and in the case of the expectant mother to help her in the preparations for her confinement. The course of study is similar to that given to the young girls, but is given chiefly in the form of talks and demonstrations, with emphasis placed upon the special need of expectant and young mothers.

Another interesting experiment was tried a year ago, when, in co-operation with the Illinois Children's Home and Aid Society, we opened a flat next door to the nursery for the care and training of young mothers with babies. During the year eleven such mothers were cared for, with excellent results, both as to physical condition of the mothers and babies, and to training. One of them, an ignorant little Polish girl, has been cook in our nursery until a few weeks ago she was happily married to the father of her child. Another is cook in a neighboring institution. Several of the girls still come occasionally to visit us on their afternoons off, and to display with pride their splendid babies.

The immigrant mother, discouraged by poverty and great loneliness of spirit, dazed and often apparently downed by the difficulties of the adjustments to the new and strange environment, may also find help at the nursery. She finds in the nursery group her own countrywomen, who give her companionship, and help her to understand the new land and people. She finds washtubs, pails and scrub brushes, which she understands, and with these as a basis she grows into a knowledge of the use of household equipment and into ideals of cleanliness. An average of eleven women per day are sent to us for relief work and instruction by the district visitors of the United Charities. They receive \$1.00 per day, their car fare and free care for their children. Some of them are sent to us for special care and instruction, that they may become more fit as home-makers. Through her work the mother becomes acquainted with the staff workers, realizes her kinship with them, and accepts their help and advice with really touching confidence and appreciation.

When confronting a situation of overwhelming difficulty I ask of one of these mothers: "Well, Mary, what are you going to do now?" So often the response comes: "I no know, Miss Brockett. You tell me. I do what you say." The climax of this confidence and dependence found expression when Mrs

Talva, after a widowhood of two years, received a proposal of marriage from Nick, and responded: "I no know. You'll have to ask Miss Brockett."

The training of these mothers, as far as industrial efficiency is concerned, simply prepares them to do better work in cleaning, laundry work and plain cooking. We have, however, been able to increase their earning capacity along these lines. It is to be regretted that the question of earning capacity for mothers with young children must be considered, but under existing social and economic conditions this is necessary, and the training which will bring about this increase is a distinct contribution to the family situation. All of the regular adult workers in our nursery, i. e., the cook, laundress and nursery assistants, are mothers with children who came to us as relief workers. Each was trained for her particular work, advised as to family situation, and in each case the woman has become a really efficient worker, and the family entirely self-supporting.

Directors and matrons of the smaller day nurseries have sometimes asked: "That is all very well for the Mary Crane Nursery, where you have everything, but what are you going to do about our little nursery?" It seems to me it is largely a matter of vision and emphasis. We may limit our vision to the care of the child and the relief thus afforded, with little or no thought for the educational opportunities presented thereby, or we may have children's houses, as M. Montessori has done in Italy—educational institutions where the care of children is only a means to an educational end. The Montessori methods and ideals, possibly even the educational material will doubtless prove most helpful to us. Moreover, it will tend to make us realize needs, less material, than now we recognize, and suggest that the training might include the children who suffer from the lack of adequate maternal care, due, not only to poverty, but to the carelessness or ignorance of the mother. May we not, however, strike a balance to meet our own particular situation as it is today, give adequate relief in the care of the infant and young children of the mother who must work, but, at the same time, use the material that we have at hand to the best of our ability, as a means of training for young children, girls and mothers? Moreover, is it not true that in this training of girls and women for motherhood and home-making the day nursery may make its best contribution towards lessening infant mortality? And may not the physicians, nurses and social workers who come into such close contact with the day nurseries accomplish much toward bringing about this larger vision of nursery work and opportunity?

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

AFFILIATED SOCIETIES REPORTS

1912

Affiliated Societies were asked to indicate as far as possible their activities along the following lines:

- I. Is your Association doing any prenatal work? If so, how have the expectant mothers been reached; that is, from what source have names been obtained? How many mothers have been instructed? What have been the results—in the health of mothers, in the increased ability to nurse the babies, in the health and progress of babies?
- II. What proportion of the infant population is reached by your Society in its
 - Feeding Conferences
 - Consultations for Nurslings
 - Welfare Stations
 - Classes for Mothers
 - Milk Dispensaries
- III. What was the total number of births in your city last year? How many were reported by midwives?
- IV. If available, please give mortality figures for districts reached by your work; and figures for entire city.
- V. What do you consider the most effective branch of your work, and why?
- VI. Summary of the year's work

THE BABIES' DISPENSARY GUILD

Hamilton, Ontario

Report—September 1st, 1911—August 21st, 1912

PRENATAL WORK

This work, so far, in our Society has been incidental with our Dispensary patients, expectant mothers being visited more regularly and frequently, and advice given to them in their homes. Sixteen in all have been noted. In each case mother and babe are in good health, seven are entirely breast fed, the remaining number are on mixed (breast and milk formula)

FEEDING CONFERENCES. CONSULTATIONS, ETC.

The number of patients admitted during the year was 9.24 per cent of city births. All of these branches of work are covered by our daily demonstrations for instructions, regular feedings, etc., both in the Dispensary and home, and in our daily clinics at the Dispensary

BIRTHS

Total in city, 2,326

Number reported by midwives (not obtainable)

MORTALITY

Total number deaths in city, 408, or 175 per 1,000 births

Number of deaths in district reached by Dispensary work (not obtainable).

MOST EFFECTIVE BRANCH

HOME INSTRUCTION. Best results have been obtained from this source

Report—August 31st, 1911—September 1st, 1912

Previous number patients admitted.....	114
Number patients admitted.....	215

Total number on Dispensary roll.....	329
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DISPOSAL OF CASES

Sent to City Hospital.....	16
Sent to family physician.....	42
Discharged	99
Deaths	15
(4 Gastro Intestinal, 11 other causes)	

Total	172
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In regular attendance.....	157
Total daily attendance at clinics.....	2,041
Average	11

CASES REFERRED

To Family Physician.....	20
To City Hospital.....	5
To City Hospital Outdoor Department.....	33
To City Relief Officer.....	6
To City Health Officer.....	4
To City Tuberculosis Dispensary.....	5
To Victorian Order of District Nurses.....	2
To School Nurses.....	4
To other charitable organizations.....	17

Total	96
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VISITS

Original for instruction and investigation.....	257
Special nursing visits.....	187
Cases referred.....	62
Revisits	1,600

Total	2,166
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MILK DELIVERY

Certified Milk.....	12,181 quarts—16,490 pints
Albumenized milk.....	989 quarts— 124 pints

WOMAN'S BOARD

- Clothing supplied.....Apparel for fifty infants
 (For loaning in emergency cases)
 Clothing supplies donated.....Twenty-one families assisted
 (Given in needy cases)

PUBLICITY CAMPAIGN

A publicity campaign was carried on by the Board of Trustees from June 20th to July 5th, which was of an educational nature. A subscription list totaling about \$15,000.00 (including pledges for future dates) was the result. The Guild sends a letter to every mother explaining the work, inviting either the securing of our services or some financial aid from the mother, where circumstances warrant it.

THE BABIES' MILK FUND

Detroit

1. Prenatal work is carried on through obstetric dispensaries and pregnancy clinics working in connection with our own, and in some cases under our supervision. Names have been obtained in some districts by house-to-house canvass. In others the pregnancy clinics are well attended without special canvassing.

The results have been distinctly good in better health of mothers, increased ability to nurse, and health of babies.

2. PROPORTION OF INFANT POPULATION REACHED:—Our work is best considered under the heading of "Welfare Stations."

So far as we can tell we are reaching directly about 5 per cent of the infant population.

3. TOTAL BIRTHS, 13,372—Number reported by midwives—not known.

4. AS FIGURES BY DISTRICTS:—For entire city, 1,861—13.9 per cent.

5. Consider that the nurses' visits of instruction to the homes are the most effective features of our work.

6. We have increased the number of dispensaries since July from two to five; have considerably more than doubled the number of babies under supervision, have established obstetric dispensaries as an effort to answer the midwife question, and have in general had a healthy, if not very rapid, year's growth.

THE BABIES' MILK FUND ASSOCIATION

Louisville

- I. The Association is doing whatever prenatal work can be accomplished in conjunction with its other activities. The majority of expectant mothers are those who have been in touch with the conferences by reason of previous children. In every case the health and progress of the child has been thoroughly satisfactory, and the mothers have all been able to nurse the infants except when advised otherwise by physicians.

- III. Total number of births September, 1911, to September, 1912 4,627
 Number reported by midwives..... 336
- IV. Death rate for entire city—under five years..... 14.1%
 Death rate Babies' Milk Fund Association—under five years 3.1%

- V. The systematic instruction given by the nurses in the homes has brought quicker and more lasting results than other means of teaching. Concentrated attention and lack of self-consciousness on the part of the mother and ability of the nurse to adapt method to individual need.
- VI. The Babies' Milk Fund Association has taken a stride this year which carried it past the stage of seasonal activity to the strong, steady effort of a continuous campaign. The value of this step is shown in the marked decrease in infant mortality in our city. According to the report of the Department of Health, there were seventy-three deaths from diarrhoeal diseases in 1911, and in 1912 only thirty-seven deaths, a falling off of about 50 per cent.

Instead of the seven pure milk stations open previously for five months only, the Association has maintained four yearly stations, each in charge of a graduate nurse. In addition, the Association has employed an extra nurse to visit families living beyond station territory.

The co-operation of many doctors has brought an even greater number of well babies under the care of the nurses, who in this way were able to prevent much serious illness this year.

The Association continues to maintain its modifying laboratory.

From September 1, 1911, to August 31, 1912:

Total enrollment.....	787
Number fed from stations.....	395
Death per cent.....	3.1%
Visits of nurses.....	12,118
Total number present at conferences.....	2,200
Total number babies weighed.....	1,182

Louisville, Kentucky. Population, 255,000

Midwives registered.....	20
White (foreign 15).....	17
Colored	3
Foreign	15
Births reported in 1911.....	336
Total births in city.....	4,627
Diplomas (St. Louis School for Midwives) ..	2
Trained before coming to America.....	12
Number calling medical assistance.....	3
Number attending abnormal cases.....	17
Care of infants' eyes.. { Good	8
{ Bad	12

Lexington, Kentucky. Population, 40,000

Midwives registered.....	4
White	0
Colored	4
Total births reported 1911.....	525
Reported by midwives.....	30
Condition of homes very poor.	
Much invalidism reported by Board of Health.	

Many cases opthalmia-neonatorum.

The Bureau of Vital Statistics of Kentucky has a total registration of 2,500 midwives practicing in the State.

It is estimated that 85 per cent are white.

A large majority of them practice in eastern and southeastern Kentucky, and in rural communities. In the mountainous country midwives do the work almost exclusively, the doctors even having them with their wives. Number able to read and write negligible.

In 1911 the midwives reported 10,284 births, 17 per cent of the total number.

No qualifications are required in this State, but the Vital Statistics' Law requires them to register with a local registrar.

They are amenable to the law only for failure to comply with this rule.

**CERTIFIED MILK AND BABY HYGIENE COMMITTEE,
ASSOCIATION OF COLLEGIATE ALUMNAE
San Francisco**

The report of this Committee for 1912 must largely be a repetition of the report given a year ago—for the Chicago meeting—except for some increased figures in numbers of babies cared for and numbers of dollars spent. That the work has been worthy of effort is shown in our last set of statistics, which gives the mortality among the 186 babies cared for by the San Francisco Associated Charities at 5.9 per cent.

The general city mortality among children of the same age remains nearly 10 per cent.

As in the past the work has assumed two characters:

1. That of providing certified milk for different groups of needy infants, and

2. Education.

I. The same four groups remain our wards, namely:

- (a) The 186 babies boarded out by the San Francisco Associated Charities. These babies are given a mother's care, in foster homes, and are fed on properly modified certified milk provided by this Committee.
- (b) The babies brought to the day clinic conducted by the Telegraph Hill Settlement.
- (c) The Florence Crittenton Home babies that need more than the mothers' milk.
- (d) The sixteen scattered babies in Alameda County under the care and supervision of our sub-committee on the east side of the Bay. These babies are brought to the clinic at the Oakland Associated Charities, conducted by our Committee member, Dr. Florence Sylvester. A visiting nurse, paid by the Committee, teaches the mother in the home the proper modification of the certified milk provided by the Committee.

II. EDUCATION.

The educational work has been carried on as previously reported. Circulars on the care of the infant are mailed to every mother registering the birth of a child.

In San Francisco this work was done until within the past few weeks, and we are now awaiting the outcome of our request that the

work be done by the Board of Health. The educational value of the circular would thus be increased, because they could be mailed as part of the regular routine of the day's work immediately upon the registration of the birth, and so reaching the mother when the child is still very young, before the formation of bad habits.

In Oakland and Berkeley the respective Boards of Health bear the expense of printing the circulars, and the Committee—as in the case of San Francisco—does the clerical work and bears the expense of postage.

Jointly speaking, an average of 1,000 circulars monthly have thus been distributed.

The two nurses now caring for the boarded-out babies of the San Francisco Associated Charities are necessarily a far-reaching factor in the educational campaign for the proper feeding and hygienic care of the baby. They reach not only the 186 babies actually provided with milk by this Committee, but indirectly every neighborhood where a child is boarded.

The weekly clinic at the Associated Charities has assumed large proportions, the average attendance being 25.

The foster mothers continue a source of never-ending joy to those of us who work so hard to provide the funds for the work.

The results, shown in our statistics, tell the story of how well the foster mothers are chosen, how efficient are the three attending physicians and two visiting nurses, and how worth while the effort to provide clean milk from healthy cows.

THE CHILDREN'S AID SOCIETY OF PENNSYLVANIA Philadelphia

I. Prenatal work does not come within the scope of the Children's Aid Society.

II. The Society established during the year a department for wet-nursing.

The Children's Aid Society has undertaken this work in order to secure wet-nurses for young babies for whom it is asked to provide such care on the recommendation of doctors connected with hospitals and charitable agencies. In addition, the Society hopes to keep on hand a list of certified wet-nurses, who may be employed by doctors for their private patients. The wet-nurses and their babies are examined by a doctor, and no one will be recommended who has not passed the various tests required to provide every safeguard for both the wet-nurse and the baby. When two babies are being cared for by the same wet-nurse, precautions are taken to see that both are properly nourished.

A trained social worker is in charge of the department, and the work is done under competent medical supervision.

III. Forty thousand and sixty-six births were reported in Philadelphia last year; 9,116 were reported by midwives.

IV. The mortality figures for the City of Philadelphia in 1911 show a total of 26,092, of which 13,773 were males and 12,319 were females. Of these 17,680 were adults and 8,412 were minors. Of the minors 4,558 were boys and 3,854 were girls.

The deaths classified by age periods were as follows:

Under	1 year	4,630
Between 1- 2 "	"	1,139
" 2- 5 "	"	1,157
" 5- 10 "	"	599
" 10- 15 "	"	302
" 15- 20 "	"	585
" 20- 30 "	"	1,802
" 30- 40 "	"	2,580
" 40- 50 "	"	2,650
" 50- 60 "	"	2,072
" 60- 70 "	"	3,317
" 70- 80 "	"	2,737
" 80- 90 "	"	1,251
" 90-100 "	"	175
" 100-110 "	"	6

V. Probably the most effective branches of the work of the Children's Aid Society of Pennsylvania are the department for boarding out young children in carefully selected private families in the country, and the department for destitute mothers with young infants which seeks to prevent the separation of the mother and child, and the department for promoting wet-nursing.

VI. During the past year the Children's Aid Society of Pennsylvania has co-operated with the Department of Health and Charities in promoting the Baby-Saving Show, and has extended and developed its work in the department noted above.

CHRISTIAN SERVICE LEAGUE

Wichita, Kansas

We have received into our care during the year 43 babies, nearly all of which were under three months old when received. We had eight babies in our care when the work of the year began, and out of the entire number we have had only two deaths.

We have no accurate way of determining how much we really have accomplished along some of the lines of prevention. Four of the best physicians of this city are co-operating with us, and are giving their services free of charge.

THE COMMITTEE OF CHILDHOOD'S HEALTH EXHIBITION

Boston

The Committee of Childhood's Health Exhibition of Boston is an interesting illustration of economic advance and proper social aid in connection with preventive medicine. At the Out Patient Department Clinic of the Children's Hospital of this city a demonstration of a few practical points—such as the dipping off of cream, exhibition of various rubber nipples, with a few facts on simple modification of milk—was graphically given by a physician during the summer of 1907. Three years after one of the mothers returned, wishing to see the original demonstration repeated. It was this evidence of interest, which had withstood a test of three years, that led to the formation of the Committee.

Originally, the Committee was to be an information bureau, to which mothers could apply for knowledge regarding the care of their babies, the buying of needful utensils for the nursery, the proper cooking of foods, and the ways and means for obtaining proper care of their children. It was early seen that permanent exhibitions along these same lines were necessary; and talks and demonstrations of the same naturally developed.

The Committee felt that a nurse, especially trained and enthusiastic, could develop these exhibits, and that such could be transported from place to place to instruct graphically other groups of citizens. It was hoped that the time and labor for transportation and use of a nurse could be partly supported by those asking for the exhibitions and demonstrations. As a later step, it was thought that the department stores, supplying utensils, could be brought into competition, making it more economical for young mothers to procure the essentials.

The scheme of producing such exhibits developed as follows: A nurse investigated personally the various stores where the necessary articles for different exhibits were offered. She then put these exhibitions on as economical a scale as possible, and offered them complete to a group of physicians (specialists). On being passed on by this medical committee they were accepted, and made a permanency. In connection with these exhibitions the nurse developed talks so that she could travel with the exhibits, and in that way bring out points necessary to emphasize.

This nurse has co-operated with mothers' clubs, public gatherings, childhood welfare meetings, and already, with the exhibit, has visited several places in the surrounding cities in helping to educate the public. Enthusiasm on the part of the public has been gratifying. Similar committees have been formed in several places with an idea of helping each other in originating more practical means to develop healthy citizens.

The definite budget for such a nurse and exhibitions is a small one. The existence of such a committee and its work is one more arm to preventive medicine.

THE COMMITTEE ON INFANT SOCIAL SERVICE OF THE WOMEN'S MUNICIPAL LEAGUE OF BOSTON

This Committee is engaged principally in prenatal work, caring for women during pregnancy for as long a period as possible.

The patients are obtained from maternity hospitals, dispensaries, charitable organizations, private physicians, and by personal application of the patients. Besides caring for their own patients the Committee is also, at the request of the Instructive District Nursing Association of Boston, supervising all the prenatal care given by this Association throughout the city, both in its district work and in its training school for district nurses. This last work is especially valuable, for it reaches many other cities through the district nurses who receive their training at this school.

The number of women carried to confinement throughout the period of time covered by the Committee's work has been 1,267.

The total number instructed for a month or more has been 1,496.

The difference is accounted for by the patients often moving away and leaving no address, going out of town too far to be visited, etc.

Of the patients under the care of the Committee

Three have miscarried in the three years and five months of work.

Two of the miscarriages occurred in the first year.

One occurred in the second.

None has occurred for about two years past.

No patient has died during pregnancy in the whole period.

Three deaths have occurred at childbirth.

II.

The percentage of stillbirths has been..... 2.7%

The general average appears to be about..... 5.3%

The percentage of premature births has been..... 2.1%

The number of cases showing symptoms of threatened eclampsia has been reduced as follows:

First year..... 10.2%

Second year..... 4.8%

Third year..... 1.7%

On the other hand, during the last year, for the first time, four cases of this disease have developed. All of the babies were saved, and three of the mothers, but the Committee is determined to make a more serious study of methods of prevention, and in consequence are now testing the urine and taking the blood pressure at every visit, which means at least once in ten days. The blood pressure is then charted—twenty cases to each chart—in the hope that results of value may thus be obtained.

On an average the women are only under the care of the Committee from two to three months, because they have not yet learned the importance of registering early, but some have been cared for six and seven months, and one for the full term.

This latter case shows very clearly the importance of early registration. Her first child had died within a week of birth from cerebral hemorrhage, caused by a contracted pelvis which necessitated the use of instruments. With this child she had been cared for only a short time. With the second she applied for care as soon as she thought herself pregnant. The child was delivered by Cæsarian section, which, because of constant observation of the patient, it was possible to perform without waiting for labor to begin, and the child, whose picture at nineteen months' old was exhibited at the International Congress on Hygiene and Demography, was a healthy, vigorous baby. With the third pregnancy, in spite of her previous experience, she decided, through the advice of neighbors, not to register until the sixth month, and at five months she miscarried. She promises to send immediately for the nurse should she again become pregnant.

The birth weight of the children has been eight and a half ounces. Their condition a month after birth may be seen from the following facts gathered from 112 cases tabulated:

Breast fed, alive.....	79	dead....	1	percentage	71%
Artificially fed, alive.....	10	"	0	"	16%
How fed—not known—alive...	10	"	3	"	9%
Percentage of deaths.....					

The Committee believes that the cost of the work should be borne, if possible, by those benefiting by it, because, first, payment for value received promotes self respect, and, second, because work which is self-supporting can be extended without limit. The cost per patient has been \$2.61, but the charge is \$3.00, to allow for deficiencies which might arise.

Money is not given in "charity," but if it is really needed in a given instance, the Associated Charities are asked to co-operate with the Committee in care of the case.

The women are cared for in their own homes, for the Committee feels that if the home is not the right place for the pregnant woman, the solution usually lies, not in removing the patient, but in reforming the home.

Pregnancy is a time of peculiar sensibility and susceptibility, and, therefore, the patient can often be appealed to at this time with better results than at any other. This side of the work should not be neglected, for it has great spiritual possibilities.

Besides this work the Committee is trying to lower the rate of infant mortality by persuading the Boston School Committee to introduce teaching in the care of babies into the regular curriculum for girls of the seventh and eighth grades of the grammar schools. Not only would it help the babies of today, for these girls are the little mothers to whom the care of the baby is often confided by the over-worked mother—but the babies of the next generation would profit even more, for the future mothers would not then start with an ignorance so crass as only to be believed when seen. This teaching would mean an even earlier start than "prenatal care," and yet it does not supersede it, for nothing can ever do that, not even eugenics, when it shall have become exalted and glorified.

COMMITTEE ON PREVENTION OF BLINDNESS New York

During the past year the Committee's infant welfare work has comprised an investigation of the number of pupils blind from ophthalmia neonatorum in the schools for the blind throughout the country, a study of cases of ophthalmia neonatorum in New York City, and educational work in the form of press notices and magazine articles, and distribution of pamphlets and circulars on the subject of infantile blindness.

The information obtained from schools for the blind in twenty-six states showed that in 1911, 576 or 23.6 per cent of the total number of pupils were needlessly blind as a result of ophthalmia neonatorum, this proportion being 2.2 per cent less than that of the preceding year.

To show the need of enforcing the law now practically inoperable in New York City, which requires physicians and midwives to report all cases of ophthalmia neonatorum immediately to the Department of Health, the Committee has investigated 100 cases of this disease and obtained the following information:

Seventeen midwives and nine physicians seemed to have been guilty of gross neglect in the care of their patients. Of the nine cases attended by physicians two lost both eyes, six lost one eye, and the sight of one patient was affected. Only one case of injury—in which the sight was affected—resulted from a midwife's neglect. The remaining sixteen midwives were negligent in delaying several days before summoning a physician.

The Committee believes, from its study of this disease, that if all cases were reported to the City Department of Health, as required by law, prompt and skillful treatment might be secured in every instance through the visits of an inspector. There were only 36 cases

of babies' sore eyes reported to the Department of Health during 1911, while as many as 126 were taken to eye hospitals for treatment.

Total number of births reported in 1911.....	134,544
Number of births reported by midwives.....	51,756

DIET KITCHEN OF THE ORANGES

Orange, N. J.

October 1, 1911—October 1, 1912

The Diet Kitchen of the Oranges is not doing any organized prenatal work. About half a dozen women have come of their own accord to make inquiries, and have received advice about clothing, food and necessary care.

We have had great success in prescribing cornmeal and Imperial Granum gruel for mothers whose milk was insufficient. As a result babies began to gain at once from four to nine ounces weekly. For this purpose we use the milk left in bottles after the top milk is removed.

Our consultation class is held weekly. One hundred and forty different babies have attended during the year—1,325 weighings. The regular attendants of the class almost all gain. Mothers are instructed in general care, and taught, when possible, the fundamental principles of infant hygiene. The most discouraging things with which we have to contend are the carelessness, ignorance and indifference of many mothers. Persistence in feeding the babies with tomatoes and equally unsuitable food works havoc.

One hundred and twenty-two babies were supplied with modified milk in the past year. Of this number five died while under our care—chiefly because of neglect of parents.

The total number of births in Orange last year was 732. Of these 265 were reported by midwives. One hundred and two babies under one year old died during the year—22.9 per cent of all deaths.

We consider the consultation class, where babies are weighed, and where mothers are taught, and the nurses' visits in the homes, to be the most important features of the work, because in this way the most practical knowledge is given.

The following report of the year's work is approximate, as when it was called for the year was not finished nor records completed:

Modified milk is distributed daily—11,842 quarts during the year—the prices ranging from five cents to cost. In some cases the milk is given free. Fifty-four thousand two hundred and forty-eight quarts of milk and 1,140 dozen eggs have been distributed to sick people, to ill-nourished children, and to babies requiring whole milk.

One nurse is employed, and in addition to conducting two consultation classes, preparing modified milk and giving daily advice to mothers, she has paid many visits in the babies' homes, often staying several hours. For part of the year a class for little mothers also was held.

THE DISTRICT NURSING ASSOCIATION

Providence

The Providence District Nursing Association employs six nurses for child welfare work. During the past year 2,259 cases have been cared for, and 18,866 visits have been made.

One nurse attends the clinic for babies at the Rhode Island Hospital three mornings a week, and one nurse attends the consultation for well babies twice a week.

Every case discharged from the Providence Lying-In Hospital, and every case discharged from the infants' ward of the Rhode Island Hospital is visited. These methods bring the mothers and babies under observation early, thus enabling the nurse to do a great deal of preventive work.

The nurses also supervise all licensed infant boarding-houses in the city.

One of our nurses conducted a special investigation for the Health Department during the months of July and August. One hundred and fifty-nine homes were visited, and a record of every child under two years of age taken and reported to the Health Department. The results of this investigation are summarized in the paper by Dr. Charles V. Chapin for the Section on Housing.

PRENATAL WORK:

We have no definite outline of prenatal work, but visit all expectant mothers when asked to do so. These calls are usually received from family, neighbors and insurance agents. During the past year our nurses cared for 989 obstetrical cases, and instruction was given to all these cases.

MILK DISPENSARIES AND FEEDING CONFERENCES:

We have no milk dispensaries in our city. The Rhode Island Congress of Mothers conduct two consultations for well babies, which include Feeding Conferences, Consultations for Nurslings, Welfare Stations and Classes for Mothers. The Clinic is in charge of a physician, and one of our nurses is always in attendance.

Total number of births in Providence 1911.... 5,047

Number reported by midwives..... 1,637

MORTALITY STATISTICS:

Total deaths, all ages, for 1911..... 3,598

Total deaths for 1911 under two years..... 795 or 22.10

Total deaths for 1911 under one year..... 676 or 18.75

MOST EFFECTIVE BRANCH OF WORK:

Home visiting, as it is more easy in this way to gain the confidence of the mothers, and thus influence them to carry out instructions for the proper care of the children.

SUMMARY OF YEAR'S WORK:

Number of children cared for during 1911..... 2,250

Number of children cared for under two years of age... 1,428

Number of visits to homes..... 18,366

HEALTH BUREAU

Rochester, N. Y.

We are not doing any prenatal work at present, because we have not been able to secure an appropriation for the work. Our first work of this kind was done on an appropriation from the Woman's Union, which enabled us to employ a nurse for prenatal work for six months, in order to prove the value of the work.

In our welfare work during July and August about 20 per cent of our infant population was reached. During the past summer our nurses visited 1,400 different babies.

The total number of births in the city last year was 5,206, of which 30 per cent was reported by midwives.

It is hardly possible to give mortality figures by districts, because our nurses reach nearly every district in the city, except those inhabited by the well-to-do.

Last year the census population was 227,103; births, 5,296; the birth rate per thousand, 23; deaths under one year, 447; rate per 1,000 population, 19; rate per 1,000 reported births, 84.

The most effective branch of our work is that of the nurse in the home, because it brings the nurse to the home of the mother, and teaches the mother what to do with what she has in the home.

HEALTH DEPARTMENT

Richmond, Va.

PRENATAL WORK:—

I. Yes.

In house-to-house canvass in certain districts covered by our infant work.

About fifty (*before* birth of baby).

Good in all respects. Every baby has lived.

II. Our entire work is by instruction of mothers in their homes.

This year our nurses have listed 1,025 babies.

III. Two thousand nine hundred and forty births reported.

Doctors, 1,701; midwives, 1,239. Our birth returns are not complete, in spite of every effort to make them so.

IV. During 1911, 617 babies were visited by our nurses.

Of these 63 died, or 10.2 per cent. Among the 2,323 (i. e., 2,940 minus 617) not visited 471 died, or 20.3 per cent. Our 617 babies were especially handicapped. But for our work the mortality would certainly have been higher than among other infants, but our work resulted in a mortality exactly half that of more favored babies.

V. See answer to II.

VI. Our aim is to reach *handicapped* babies. This is done by house-to-house canvass of the poorest districts, and by every effort to reach in every way babies whose chance of living is less than normal. Breast-fed babies in good surroundings are not visited. As our work is among babies whose chance of dying is certainly twice as great as among the general infant population, we expect a considerable number of deaths—and get them—in spite of our work. Nevertheless, the death rate among our babies is considerably less than among the more favored classes, who do not receive instruction.

INFANT WELFARE ASSOCIATION

New Haven, Conn.

The work this year has been especially that of reorganization. From being a sub-committee of the Consumer's League, the Society has become an independent organization; and instead of selling milk modified and in feeding bottles, the mothers are taught to prepare it themselves; a change which has been attended by very gratifying results. Certified milk of the highest grade has been offered for sale at the four stations, but when preferred the mothers have been allowed their own milkman, if his milk is of a satisfactory grade. Instructions in the preparation

of the milk is given both at the stations and in the homes, and is followed up by frequent visits by the nurses. Weekly conferences are held at each station, where there are physicians to examine the babies and change prescriptions when necessary, and careful records are kept of all cases. In case of sickness on the mother's part, or of very elaborate formulæ, the milk is modified at the laboratory, but there have been comparatively few such cases, and the mothers have learned the processes readily and intelligently.

The stations are open during the summer, and close October 1st, but two of the conferences will be carried on each week through the winter, and a nurse will be engaged for two days each week to follow up and keep in touch with old cases.

At present the Association is not doing any prenatal work, but it encourages breast feeding wherever possible, and gives instructions through the nurses in general hygiene.

STATIONS:

Number of stations.....	4
Number of nurses.....	4
Number of babies registered.....	202
Number of babies in attendance September 20.....	180
Number of deaths from all causes.....	15
Total number of births 1911.....	4,013
Number reported by midwives.....	1,519
Total number of deaths, all ages, 1911.....	2,280
Number under one year.....	425

INFANT WELFARE COMMITTEE OF THE ASSOCIATED CHARITIES Birmingham, Ala.

PRENATAL WORK:

Prenatal work has been done only in a few instances. The expectant mother has been reached through our day nursery, which is affiliated with the milk station, the names having been obtained from friends of the work and the mothers who have had children under our care. Those with whom we have come in contact have, we feel, been benefited, both in the health of the mother and ability to nurse the baby, to say nothing of the health and opportunity for progress of the baby.

FEEDING CONFERENCE:

Feeding Conferences, Consultations for Nurslings, Welfare Stations have not been conspicuous by their prominence in our work, and in these particulars have we felt very keenly the lack of a trained worker. The classes for mothers have been more successful.

It is difficult to state the exact proportion of population reached by our Society, but we have a population contributing directly to this work embracing a radius of about a mile. Many families moved into our neighborhood to enable themselves to achieve the advantage of the milk station and day nursery offerings.

Last year there were born 2,960 babies. Of these 927 were reported by midwives.

It is impossible to give mortality figures for the districts within our reach. The rate of the entire city was 140.0.

The most effective branch of our work at present is the day nursery work. It may be a little unfair to assign credit to this in preference

to the milk station proper, for the functions of the two are very closely interwoven, but inasmuch as we found it necessary to emphasize the feature of the day nursery before we could make even a beginning with the other, it perhaps deserves the credit. It is now of great importance, in that it enables us to get a hold on the mothers who are employed.

The two physicians in charge are Drs. Norborne Page Cocke and Alfred A. Walker. In July we opened a branch station in the Avondale Cotton Mill Village in connection with the Wesley House settlement work carried on there for ten months prior to our association with them. This branch department met with immediate success, and we have done not only a good milk station work, but have had a very large medical department under the supervision of the aforementioned physicians during the past year.

Since our last report we have cared for 315 different children. The usual daily average is 18. This number has varied, reaching 29 as a high point and going to a minimum of 2, this last on a particularly inclement day. It is felt by all interested in the work that it is past the experimental stage, and has more than justified the expenditure of time and money that has been necessary for carrying on the work for the fifteen months of its existence. We hope that this coming summer we will be able to emphasize the fresh air movement, establishing something in the nature of a fresh air farm along characteristic lines. Whether or not we will be able to accomplish this depends almost entirely upon our annual financial campaign, which will be held some time during the ensuing six weeks.

INFANT WELFARE SOCIETY

Chicago

Number of babies cared for from Jan. 1, 1912, to Sept. 1, 1912.... 2,854
 Number of deaths..... 102

Of this number there were:

Breast	Alliat. Mix.	H. M.	Mixed diet.
1,467	341	736	310

Nursing Staff to May 1, 1912..... 8 nurses

April 1st, added to staff..... 3 "

Making total of 11 nurses and 1 district supervising nurse.

Number of calls made by Infant Welfare Nurses:

New, 2,817. Old, 19,465. Miscellaneous, 1,059. Total, 23,341.

Number of mothers' conferences held at Infant Welfare Stations, 762.

Attendance at conferences:

New babies.....	2,130
Old babies.....	9,120
Sick babies.....	586

Total.....11,836

The Society has done little along the line of prenatal work. The nurses in their work in the districts have instructed the pregnant mothers, and have urged them to have a physician care for them at the time of confinement rather than a midwife. It is hoped that in our plans for the coming year the question of prenatal work may be more definitely developed. In another year we may be able to give a report along this line.

VI.

The Scottish Rite Masons have employed one nurse to do infant welfare work. The work has been visiting homes to instruct mothers; to hold mothers' meetings in two different places twice a month at each place, where babies are weighed and mothers instructed how to keep them healthy, and also to encourage maternal nursing. If babies are not gaining who are ill, they are advised to be sent to their own family physician or county physician. The City Health Department has three milk stations, where good, clean milk is sold below cost. Two of the stations had nurses in charge from June 1 to September 1, 1912. The Consistory nurse does follow-up work for one of the stations. The milk will be sold the year around, and they will refer the infants to the Consistory nurse. They are unable to keep up the city nurses for lack of funds.

Dr. Olin Rowe has a free clinic for infants at a local hospital each Monday. Babies are weighed and mothers instructed. The Consistory nurse attends this clinic.

At present the great need is for a children's hospital. The Scottish Rite Masons are considering the necessity of building such a hospital, or an addition to some local hospital.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION**Columbus, Ohio**

I. No regularly organized prenatal work, except in the following manner:

Our visiting nurses, eleven in number, carefully instruct all expectant mothers as to regulation of diet, strict attention to rules of hygiene, care of breasts and nipples, preparations for the coming baby, etc. The nurse also ascertains if a physician has been engaged for the confinement; if not she makes the necessary arrangements, so that a competent physician may examine and attend the prospective mother; also that nursing care be provided for.

The names of expectant mothers are obtained from friends, district physicians, the different charitable organizations of the city, such as Associated Charities, Tuberculosis Society, Diet Kitchen Association and Female Benevolent Society.

During the nine months of the current year about 175 expectant mothers have been thus instructed with marked results in the health of the mothers, and the ability and inclination to nurse the baby has been noticeably increased.

The progress and health of the baby has been most marked over results in 1911.

II. Four feeding conferences and consultations for nurslings have been held once a week during the past nine months, with an average daily attendance of 11½. Probably 10 per cent of the infant population of the city has been reached through these conferences, and through the visits of the Baby Welfare Nurses.

There are six stations in the city from which mothers can obtain modified milk.

III. Total numbers of recorded births in the city during the year 1911, 3,260.

IV. In infant mortality there has been a creditable decrease in ages from one month to five years, there being a total of 450 deaths in 1911, as against 534 in 1910.

Special attention is called to decrease in the number of deaths in children under two years from diarrhoea and enteritis, viz., 65 for the year, as against 97 in 1910.

V. We consider the work of the Baby Welfare nurse in the home the most effective feature of our work, because of the constructive and instructive work in the home, which cannot fail to have a marked influence, not only upon the lives of the existing members of the family, but also upon that of the coming life.

VI. Children under three years:

FOR YEAR ENDING DECEMBER 31, 1911.

Cases carried over.....	467	
New cases.....	424	
Total number of cases.....		891
Discharged	495	
Died	51	
Total discharged and died.....		546
Still under care.....		345
Number babies furnished modified milk.....		208

MARYLAND ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

(Babies' Milk Fund Association)

Baltimore, Md.

History:

In making this report it has been thought advisable to include the following extract from pamphlet issued by the Maryland Association in 1910, outlining the history of the Milk Stations in Baltimore:

"In 1904 the Trustees of the Thomas Wilson Sanitarium (an institution for sick babies under five years of age, open each year from about June 15th to September 1st), in order to increase the scope of their work, and to provide nursing care and proper diet throughout the year for babies of Baltimore who could not go to Mt. Wilson, established four Milk Stations in widely separated districts of the city. The work of the first year was made possible largely through the liberality of Mr. Jacob Epstein. During the second year the stations were maintained by the sanitarium. Afterwards, in order to meet the increasing demands at the stations, the Babies' Milk Fund Association was duly incorporated, and an appeal was made to the public of Baltimore for support. The sanitarium has continued to be the largest contributor. In organizing the stations those engaged in similar work in a number of American cities were freely consulted. In their final arrangement our stations resemble perhaps more closely the Milk Dispensary in connection with the Babies' Hospital in Newark, New Jersey, under the direction of Dr. H. L. Coit.

From the beginning the milk used at the stations has been produced at the Burnside Farm of Mr. S. M. Shoemaker, and modified and distributed to the several stations from the Walker-Gordon Laboratory. A number of simple milk mixtures suitable for babies of various ages are used, but it is clearly understood that other formulae can be ordered by physicians at their discretion. A uniform charge of ten cents per day for all mixtures has been charged, but no child is refused the milk because of the inability of its parents to pay. All the babies are sent to the stations by their physicians, or from the medical dispensaries

of the city. From the outset the milk has been dispensed by *trained nurses*, who spend the greater part of the day in visiting the homes of the babies and in giving instructions to their mothers."

Prenatal Work:

At the beginning of the present year, realizing that too many mothers were depending on the Milk Dispensaries, or for other reasons were unnecessarily weaning their babies, we decided to try to reach the mothers before the babies came, and with the four leading hospitals helping us we inaugurated the prenatal work in Baltimore. Once a week we called at each hospital and obtained from them a list of patients registering with them, which list included both inside and outside obstetrical cases. These names were given to the nurses in charge of the different districts in which they belonged, and the mothers were at once visited by the nurses. The work, as started, has been continued along the same lines, and from February 1, 1912, to September 23, 1912, we have received over 1,300 calls, and in every case except one we have been welcomed.

Our advice is along simple lines—fresh air, plenty of water inside and out, exercise in the open air, and to avoid too heavy work. We always caution them against lifting heavy weights and reaching up for objects high above their heads; a simple diet, avoiding fried or heavy foods, with stewed fruits, cereals and cocoa and milk, if possible. In cases where we know the mothers are not able to obtain the proper nourishment we ask (and always receive) aid from some of the agencies engaged in helping this work.

If the patient is in a normal condition, with good history of previous pregnancies, we visit once a month—otherwise as often as necessary. When the baby comes its weight is recorded and a record started. When the child is ten days old it is examined by our physician, and by the time it is a month old we can generally persuade the mother to bring it to one of the Welfare Stations, where it is again weighed and the mother is instructed by the doctor.

Welfare Stations:

We find the Welfare Stations, of which we have six, are a great aid to us in keeping track of these babies, and the numerous others which we are following.

A clinic is held once a week at each Welfare Station, with a physician and nurse in charge, and besides the examination and weights, the doctors from time to time give brief talks to the mothers collectively, which they seem to enjoy, and in which they show great interest.

The Milk Dispensaries continue to form an important part of our work, and while we are still using the laboratory modifications in selected cases where we find the home conditions favorable and the mothers of average intelligence, home modifications are encouraged.

The number of babies cared for by the Babies' Milk Fund Association has steadily increased from 500 who were coming to the Milk Dispensaries at the end of the first year to 2,500 now on our list. Of this latter number 591 only are Milk Dispensary babies, and the remainder are included in the babies being followed outside.

Dr. J. H. Mason Knox, Jr., Superintendent of the Thomas Wilson Sanitarium at Mt. Wilson, Md., is the medical superintendent of the Association. There are six other physicians connected with the work, one of whom responds to all calls to sick babies where there are no means to pay for a physician and the child is too ill to be taken to a dispensary. This physician also makes first the call in postnatal

cases, when the baby is about ten days old, when she makes a physical examination of the child and reports, as far as possible, on the health and habits of the parents. The other five physicians meet the mothers at the Welfare Stations once a week. There is also a nurse in charge and six district nurses, with three additional nurses during the summer months.

Summary

PRENATAL WORK:

Expectant mothers reached through hospitals, patients personally, nursing associations and charitable associations. Number instructed from February 1 to August 31, 1912.

STATISTICAL:

Proportion of infant population reached:

Welfare stations.....	690 (2 " 1 to 8 " 31" 12)
Milk dispensaries.....	591
Postnatal	736
Prenatal	283
Outside calls about.....	300

2,600 " " " " "

BIRTHS:

Total number of births reported in Baltimore in 1911, 9,283.*
No separate record kept of births reported by midwives.

MORTALITY:

Eighty-seven deaths from February 1 to August 31.

MOST EFFECTIVE BRANCH:

Prenatal and Welfare Stations.

SUMMARY:

For six months only—February 1 to August 31, 1912:

Calls received.....		2,583
Visits paid.....	11,153	
Nursing visits paid.....	1,343	
Weighing visits.....	2,500	
Home modifications.....	103	15,288
Calls referred to other associations.....		1,063
New patients on list.....		1,910

* Inadequate birth registration. Approximate number 18,500.

MASSACHUSETTS MILK CONSUMERS' ASSOCIATION

Boston

During the past year the Massachusetts Milk Consumers' Association has labored (as it has since its inception in June, 1910,) to secure legislation which shall adequately protect the milk supply of Massachusetts.

Two legislative years have passed without the enactment of such a measure, owing, in 1911, to the fact that Governor Foss vetoed the bill after its passage by the Legislature, and in 1912 to its being killed in the House, through his influence and that of other demagogues.

The campaign for the next session has been actively in progress ever since the adverse vote referred to above, and will be continued in spite of political opposition until the fight is won, however long it may take, for the Massachusetts Milk Consumers' Association believes that in proper laws and their proper enforcement lies the solution of the milk problem, and that attempts to furnish clean milk to individuals, however numerous such individuals may be, is at best only palliative, and a waste both of money and human life. The money now spent on palliation, if used instead for prevention; if used, for instance, in education of public opinion which shall demand adequate legislation, would accomplish much greater and more permanent results, and would eventually save many more lives. The cost of milk need not be prohibitive because it is clean, as has been proved by Dr. Charles M. North; many factors enter into the cost beside cleanliness, and these will in many cases be found to be capable of reduction, so that clean milk can be brought within reach of the poor. Milk stations are very valuable institutions, in so far as they educate mothers in the care of children, but the wholesale distribution of milk below cost is a confession of failure, as far as Legislatures and Boards of Health are concerned, for it is an admission either that the laws are insufficient for the protection of producer and consumer, or that their enforcement is inadequate.

The Massachusetts Milk Consumers' Association is at present conducting a campaign of education among the farmers of Massachusetts to convince them that their interests and those of the consumer are practically identical. The confidence of the consumer is necessary to the successful conduct of any business, and the milk business is no exception to this rule. As long as dirty milk, even in small quantities, is allowed to be mixed with clean milk, just so long will the milk of the clean producer (unless it be really certified) be looked upon with suspicion, and rightly, for it is utterly contaminated by the admixture. It is just as much for the interest of the clean producer as for that of the consumer to be protected from this dirty milk, and to have a guarantee of the quality of the milk he wishes to buy or to sell. This guarantee would safeguard the life of the one and the pocketbook of the other. In the opinion of the Massachusetts Milk Consumers' Association the State Board of Health is the proper body to furnish this guarantee. It has not now the power to do this, and it is for legislation to give it this power that the Association is working. This is embodied in their bill, which bears the name of the largest milk producer in Massachusetts, and is commonly spoken of as the "Willis Clean Milk Bill."

The Association's reply to the inquiry, "What do you consider the most effective branch of your work, and why?" is: "Prevention by improving the *whole* milk supply, rather than feeding and caring for individual babies."

THE NATIONAL LEAGUE OF NURSING EDUCATION

The National League of Nursing Education (formerly the American Society of Superintendents of Training Schools for Nurses) held its eighteenth annual meeting in Chicago, June 3rd, 4th and 5th, 1912.

During the past year members have had the suggested plans for co-operation with the Association now convening, which were presented by Miss Nutting and adopted by the Society the preceding year. If these suggestions have not been presented to the Society, I will read them:

Suggested plans by which this Association may co-operate with the American Association for Study and Prevention of Infant Mortality for the coming year

- I. (a) By each superintendent arranging in her own school for at least three lectures by experts on the causes and prevention of infant mortality, physical, social, industrial and economic.
(b) By securing for her pupils, at any effort, adequate instruction and experience in this important branch of work.
(c) By arranging for definite and systematic instruction of the mothers while in our maternity wards in the care and feeding of their babies, and of their responsibility toward themselves as mothers, and by making every effort to encourage and help unmarried mothers to nurse and keep their children.
- II. (a) By encouraging their pupils to a greater interest in maternity work and in all forms of supervision and control of work among infants,—such, for instance, as infant asylums, founding asylums, fresh air work, milk stations, etc.
- III. By encouraging our nurses to seek and accept opportunities for regular work and for volunteer work, in teaching mothers in day nurseries and milk stations, clinics and dispensaries, in groups, clubs or classes, or singly in their homes.
- IV. By encouraging every effort to bring about sanitary inspection of tenements, etc., by nurses, believing that unsanitary conditions and unwholesome ways of living will thus be discovered often in time to prevent the development of illness.
- V. By preparing our nurses to teach the care of infants in our public schools whenever it is asked for.
- VI. By joining as individuals the American Association and paying the small fee, or by joining as schools, alumnae, county or state associations, and paying a small fee.
- VII. By asking the public health committee to suggest new ways and means of co-operating with the American Association for Study and Prevention of Infant Mortality and reporting thereon next year.

While no definite results of these plans were reported at the meeting, it is believed that each superintendent of a training school for nurses is much alive to the importance of acquainting pupils with this important branch of work.

At the meeting in Chicago much time was given to the discussion of Public Health work for the nurse. Opportunity for preparation along this line of work is a part of some of the training school courses offered nurses today. The suggestion has been made that an adjunct post-graduate course be attached to the training schools enabling pupils to decide for themselves very early in their career which of the various phases of public health they have aptitude for.

Among other important matters discussed at the Chicago meeting was the idea of the standardization of the work of the district nurses, and the forming of a national association of these workers,—the ultimate end and aim of such an idea being for public welfare in health matters.

A number of members of the National League of Nursing Education hold important positions in public welfare work, and contribute of their knowledge of the care of the sick toward the betterment of health conditions.

THE NEW YORK DIET KITCHEN ASSOCIATION

New York City

The New York Diet Kitchen Association, supporting nine stations throughout the year for the distribution of pure milk to babies, nursing mothers, as well as to tuberculosis and other cases of general illness, would report as follows:

PRENATAL WORK: Up to the present time this Association has made no special effort along this line. Milk has been supplied to expectant mothers referred to the stations, or with whom the nurses and matrons have come in contact, and general instruction has been given, but no report of numbers or results can be made. It is expected that this work will shortly be taken up regularly in at least one of the stations.

Figures regarding the infant population of the city are not at hand. The average daily enrollment of babies at the stations, either for the conferences or to receive milk, is about 1,425. Over one-third of these are nursing babies.

The instructional work with the mothers is considered by this Association to be the most important branch of its work. In teaching a mother the care of her baby, the value of breast feeding, or the home modification of milk, if artificial feeding is necessary, it is felt that the results obtained do not end with the particular mother instructed, but that she becomes a factor in passing the knowledge on to others.

The Association's work during the past year has been along the same lines as heretofore. Certified milk has been dispensed to babies and nursing mothers at \$.06 a quart, and conferences for mothers and babies have been held in all the stations weekly or twice weekly throughout the year, and daily in the heaviest stations during the summer. Volunteer physicians have charge of the conferences in two of the stations, and the Association supports nurses in five. Elsewhere the conference work is in charge of doctors and nurses detailed from the Department of Health.

From June 1st to September 15th of this year 2,248 babies were enrolled at the stations, with eighteen deaths from all causes.

THE NEW YORK MILK COMMITTEE

New York City

The New York Milk Committee has published the results of a successful two years' experiment to demonstrate that milk equal to certified can be produced by the ordinary farmer with ordinary equipment, and delivered to the consumer at a price usually charged for bottled milk of uncertain quality. In order to carry on this experiment the organization of the New York Dairy Demonstration Company was effected in 1900. The Committee's interest in this undertaking was limited by its desire to make the work educational. The creamery, with its group of farmers, constituted an experiment station where facilities to demonstrate, on the one hand, the efficiency of various sanitary operations, including the elimination of tuberculosis, and on the other hand the cost of such operation, including the influence on the price paid to the farmer and cost of milk to the consumer.

At the outset it was determined that the Company would handle only milk which was essentially clean, and that no milk of an unsanitary character would play any part in the Company's business. It seemed clear that while the character of certified milk was ideal, yet its methods of production made the supply extremely limited, and its cost to the consumer made the demand equally limited. The problem of producing a sanitary milk was approached with the purpose of discovering whether some more simple and inexpensive methods could not be devised for securing a milk of a satisfactory sanitary character which could be produced by the rank and file of milk producers without expensive equipment or expensive cost of operations.

A survey of the methods of producing certified milk showed a very large number of sanitary requirements, all of which the individual producer was required to undertake on his own premises. Among these sanitary requirements were some obviously of much greater importance than others. It also seemed certain that many of the measures could be done just as well, and even better, at a central plant than on each individual dairy farm. The measures chosen for the Company's work and the division of labor which has been made have followed the lines suggested by Dr. North, and have been as follows:

1. What the dairy farmer does.
 - (a) Cows healthy and tuberculin tested.
 - (b) Cow feed subject to approval of station superintendent.
 - (c) Milk not used during calving period.
 - (d) Employes free from infectious disease.
 - (e) Milking only in covered pails, and only utensils provided by central station used.
 - (f) Milk cooled with ice.
2. What the milk station does.
 - (a) Furnishes pure water supply.
 - (b) Furnishes superintendent trained in sanitary science and force of employees for milk handling.
 - (c) Furnishes separate rooms for receiving milk, washing and sterilizing utensils, cooling and bottling milk, and for other purposes.
 - (d) Furnishes steam boiler, power plant, apparatus and

machinery for washing, sterilizing, bottling, cooling and equipment for shipment of milk.

- (c) Furnishes laboratory for bacteriological and chemical testing of samples taken from all dairy farmers daily.

The use of covered milking pails and of ice by the dairy farmers have been the two most important sanitary measures instituted.

While the sanitary measures above outlined are believed to be positively efficient in furnishing a clean milk, yet it was recognized that a distinction must be made between the recommendation of such measures and their actual practice.

Control of the actions of milk producers by law or by official inspectors is incomplete, and so far has failed to produce the desired results. The putting into practice of the sanitary measures proposed by this Company has not been accomplished by force, but by the offering of proper financial inducements to the dairy farmer in return for his services.

Premiums have been offered for each of the measures required of the farmer. There has been one premium for milk from tuberculin tested cows, and another premium for the use of covered pails and of ice. An additional premium was given for all milk brought to the station which contained less than 10,000 bacteria per c. c. The payment for milk on a bacteriological basis is a novelty in the milk industry, but this plan has proved in the Company's experience to be a positive method for obtaining milk having small numbers of bacteria.

Since milk is a commodity of such vital importance to such large numbers of people, and especially to infants and children, the matter of price has been of equal importance with the matter of quality. In order to properly determine the cost of the work, it has been necessary to conduct the work of the Company on a strictly business basis. The buying and selling of milk has been a necessary part of the Company's work, and while these transactions have necessarily been commercial, the work has been of a strictly experimental character, and it has been possible only by conducting the work in this way to supply the facts necessary to solve the economic problem presented.

The basis of payment of farmers was the average market price of five large shipping stations located in the same territory as the Company's plant, and within hauling distance of the Company's patrons. In addition to this, the following premiums have been paid:

For milk from tuberculin tested cows, per quart, $\frac{1}{2}$ cent.

For adopting sanitary measures, per quart, $\frac{1}{4}$ cent.

For milk below 10,000 bacteria per c. c., per quart, $\frac{1}{4}$ cent.

For butter fat above $3\frac{1}{2}$ per cent, a premium of $\frac{1}{10}$ cent per quart for each $\frac{1}{10}$ per cent butter fat.

For milk below $3\frac{1}{2}$ per cent butter fat a penalty of $\frac{1}{10}$ cent per quart for each $\frac{1}{10}$ per cent butter fat.

MILK STANDARDS

The New York Milk Committee, in March, 1911, decided to appoint a commission on milk standards. The appointment of this commission was the direct result of the observation of the Committee that there was great incompleteness and lack of uniformity in the milk standards, milk ordinances, and rules and regulations of public health authorities throughout the country for the control of public milk supplies. There was a need that health officers and civic organizations in American municipalities working for a clean and safe milk supply should be furnished conclusions drawn from large experience and mature judg-

ment, and that ordinances should be as free from erroneous positions and as uniform as possible.

A special committee was appointed to consider the names of more than 200 men of prominence in medicine, sanitation, public health and laboratory work, particularly those recognized as authorities on the milk question. The committee recommended the selection of twenty of these to serve as a commission on national milk standards. Seventeen of the persons selected consented to serve and take an active part in the work of the commission.

While this commission was created by and its expenses were borne by the New York Milk Committee, it was desired that the commission should make recommendations that might be adopted by any city or town in the country. The report of this commission was published by the United States Government in the Public Health Bulletin of May 10, 1912.

BOVINE TUBERCULOSIS

A special committee has been appointed to investigate the effectiveness of the present system of State control over bovine tuberculosis, and prepare constructive recommendations which may be made the basis for a state-wide campaign to insure a better control, if necessary, over this disease.

HOSPITAL FACILITIES FOR SICK BABIES

The committee has under way an investigation to determine present hospital facilities for the care of sick infants. All cases of babies referred to hospitals by milk stations during the past summer are being followed up in order to ascertain the methods and practices of hospitals in handling such cases. Facts already obtained emphasize the necessity for the standardization of requirements for admission, and the adoption of some plan by which hospital facilities may be more effectively utilized by private and public agencies desiring to find accommodations for sick babies.

HEALTH WORKING DISTRICTS

The Committee has been experimenting to ascertain the advantage of tabulating birth and mortality returns by small territorial units, in order to obtain a better index to conditions existing throughout the city. This study will be used as a basis for recommendations to the Health Department as to the redistricting of the city into smaller territorial units than the present ward units.

A ward as a unit for estimating mortality is too large an area, and often combines areas of intense congestion and sparsely populated areas. For the purpose of having more accurate knowledge of the distribution of the deaths from week to week, the city has been divided into small areas based upon density of population and the mortality figures in past years. In this way it will be possible at any time to tell the mortality under one year of age in any one of these districts for the week previous, or for any number of previous weeks, and also the mortality in the current week at the close of the previous day. It will also be possible with a very small amount of work to determine the causes of death in any district, and also to discover the blocks where the high mortality occurs. By this system it is hoped that a more comprehensive view of the infant mortality situation may be obtained, and information may be available at the time it is needed instead of days or weeks after.

A knowledge of conditions from day to day will also make possible an effective use of the forces of prevention.

MILK STATIONS

November 1, 1911, the Committee discontinued its milk stations, which had been carried on since May, the work then being taken over by the Department of Health. The milk stations were maintained during these months in order to demonstrate their value in reducing infant mortality, and in order that this demonstration might be sufficiently complete a special report on Infant Mortality and Milk Stations has been published by the Committee, showing the results obtained in New York in 1911, compared with other cities, and giving special statistics on milk station management and the results obtained.

PRENATAL WORK

Since August, 1911, this Committee has been carrying on prenatal work. From August until June, 1912, this work was carried on by the nurses. Since June six nurses and a supervising nurse have been actively engaged in the field. Mothers are enrolled by canvass in the district in which the nurse works, by reference from milk stations, settlements, lying-in hospitals and charitable organizations. They are enrolled as early in pregnancy as possible. There is no distinction made as to whether married or unmarried, or whether they are to be confined by doctor, hospital or midwife. When possible they are referred to physicians or hospitals for confinement. Instruction in the general hygiene of pregnancy is given in the homes by special nurses, the effort being made to prevent premature and stillbirths, and to make the mother more fit to nurse her baby. A physician is available at all times for advice and making visits to the homes in special cases when the mother is not under the care of a physician or hospital.

Since August, 1911, nearly 1,000 mothers have been instructed, and the cases followed up until the baby was one month old. Visits are made every ten days before the birth of the child, and more frequently after its birth.

The statistics for these cases show that whereas in the Borough of Manhattan there were 48.6 stillbirths reported per 1,000 pregnancies; among the supervised mothers the rate was 19.6; among every 1,000 babies born in Manhattan 40.9 died under one month of age; while among the cases supervised the rate was 23.6 per 1,000. Of the babies born 93.3 per cent were being breast fed entirely at the end of one month, and 3.3 were being partly breast fed.

UTICA BABIES' PURE MILK AND HEALTH STATION

Utica, N. Y.

Owing to the interest aroused by the Municipal League, attention was directed toward the further reduction of infant mortality in the city of Utica. A committee was formed and subscriptions raised to look after the finances. It was hoped that the simplicity of the work would lead to some municipal action another year. Through the help of private donations the financial side of the experiment was taken care of. A room was furnished, in which the clinic and milk station could be held. One of the school diet kitchens in the Italian district was given us, and the simple furnishings, such as scales, etc., were donated. Ice was donated by one of the ice companies, and a few necessary drugs were given by two of the drug firms. We tried to keep the expenses low, simplicity being the keynote. Considering the experimental nature of the enterprise, we feel greatly encouraged. As the primary object was one of instruction in the care of infants, rather than the cure of diseases among them, special attention was given to the educational side.

(a) **EDUCATIONAL.** Mothers were instructed at the milk stations three times a week along the lines of hygiene by the attending physician. This instruction included the correct clothing of children and proper nursing and feeding. Instruction was given also in the homes by the visiting nurses daily, with occasional visits by one of the four attending physicians. Posters of instruction in the Italian language were hung upon the walls of the dispensary, and literature furnished by the Board of Health was distributed.

(b) **PREVENTIVE AND REMEDIAL.** Though several stations are needed, this year we were able to support but one only, and this in the Italian district. Milk was furnished at five cents a quart. Though not certified milk, the Health Board kindly inspected the source of supply, and furnished us with good milk. This was dispensed daily during the months of July and August at the station, and instruction given both there and at the homes as to its proper modification. Every effort was made to persuade the mothers to nurse their infants, and where this was impossible, to furnish the proper formulae. No elaborate formulae were used, simply a dilution of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, or whole milk with or without barley water, or plain water with milk, sugar and either lime water or solution of citrate of soda. Few medicines of the simplest kind, such as castor oil, bismuth, or Dover's Powders, were dispensed. Great credit is due to the work done by the visiting nurse in the homes, which was under the supervision of one of the physicians. Galvanized ice cans were sold for sixty cents a piece to those able to buy, and where this was impossible instruction was given in the manufacture of a simple icebox of a very inexpensive character.

(c) **AFFILIATIONS.** There was no actual connection with the Board of Health, but the Board gave us every aid, both in supervising the milk supply and in furnishing literature, four of the city physicians giving their time so that a clinic could be held three times a week.

(d) **STATISTICAL.** We had two hundred names on our record books for July and August. There were seven deaths. This includes all the names entered for milk supply, some of whom were not treated by the attending physicians, but by other physicians in the city. One child was brought to the clinic nearly moribund, and only lived a few hours. Three of the deaths were from enterocolitis. One of these cases was complicated with whooping-cough; two from marasmus, one from mal-

nutrition with whooping-cough. One child two weeks old, whose mother refused to nurse, failed to thrive on the formulae given. The general city death rate among children from one to five years old was not materially changed, though slightly reduced. However, the largest death rate in former years has been among the Poles, where no milk station or dispensary has been maintained, rather than among the Italians, so that we hope for better results when more stations are started in the other crowded districts.

(c) **FINANCIAL.** The work this year was carried on by private contributions.

(f) **LEGISLATIVE.** No attempt was made this year along legislative lines.

(g) **SOCIAL.** Instruction given by the physician at the dispensary, but the work for the improvement of the home conditions was left entirely in the hands of the visiting nurse. The improvement of the milk supply is in the hands of the Board of Health, and it is at work upon that constantly. A detailed inspection has already been made. Instruction also is given at various dairies. In all about two hundred dairies have been visited.

VISITING NURSE ASSOCIATION Waterbury, Conn.

PRENATAL WORK:

The Waterbury Visiting Nurse Association does no prenatal work. We hope to begin it this winter.

MILK DISPENSARIES:

In our milk stations we try to live up to our ideals of teaching the mother in the home, if possible, so our milk station babies have not numbered over thirteen at one time all summer.

BIRTHS:

The total number of births in Waterbury in 1911 was 3,209, of which 422 were reported by midwives.

MORTALITY:

Of the 389 babies carried during the last year by this Association 30 died. Figures of the entire city are not available.

MOST EFFECTIVE BRANCH:

We consider the Home Instruction to mothers in the care of their babies the most effective branch of our work. The best results are reached this way.

SUMMARY:

Whole number of babies visited.....	1,511
New calls.....	306
From doctor.....	152
From family.....	244

Our nurse devotes her time to the instruction of mothers in their homes in the care of the baby. We have a milk station in the summer months, and a loan closet of refrigerators, ice caps, etc.—ice tickets for those who cannot afford ice.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

CONSTITUTION

ARTICLE I—Name

The name of this Society shall be **THE AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY**.

ARTICLE II—Objects

The objects of the Association shall be: (a) The study of infant mortality in all its relations; (b) the dissemination of knowledge concerning the causes and prevention of infant mortality; (c) the encouragement of methods for the prevention of infant mortality.

ARTICLE III—Meetings

The meetings shall be held at such times and in such places as may be directed under the By-Laws.

BY-LAWS

ARTICLE I—Membership

This Association shall consist of six classes of members: (a) Active Members; (b) Life Members; (c) Sustaining Members; (d) Contributing Members; (e) Honorary Members; (f) Affiliated Organizations.

(a) Those persons subscribing to the invitations for members at the Conference called by the American Academy of Medicine at New Haven, November 11-12, 1909, and such persons as shall from time to time express a desire to become identified with the Association may become members so long as they comply with the provisions of the By-Laws. The dues of Active Members shall be Three Dollars (\$3.00) a year.

(b) Persons may become Life Members upon the payment of Two Hundred Dollars (\$200).

(c) Persons may become Sustaining Members on the payment of Twenty-five Dollars (\$25) a year.

(d) Persons may become Contributing Members upon the payment of Ten Dollars (\$10) a year.

(e) Persons distinguished for eminent services in the study or prevention of infant mortality may be elected Honorary Members.

(f) Organizations pursuing objects in harmony with the objects of this Association may become Affiliated Members according to the terms set forth in Article X.

ARTICLE II—Board of Directors

SECTION 1. The Association shall, at its first meeting, elect a board of thirty directors, divided into five groups of six each, to serve one, two, three, four and five years, the duration of office to be determined by lot.

The Board of Directors may hereafter, at the annual meeting or at a special meeting of the Association, be increased in multiples of five to at most one hundred, the additional members to be assigned to groups in accordance with the provisions of the preceding paragraph of this section. At least one-third of the total membership of the Board shall consist of persons not engaged in the practice of medicine. The election of new Directors who fail to qualify as members within three months after notification of election shall be declared void.

SEC. 2. The Board of Directors shall make its own rules; the government of the Association, the planning of work, the disbursing of moneys, the arrangements for meetings and congresses, and all other matters pertaining to legislation and direction shall be in its hands; committees shall have the power to execute only what is directed by the Board.

ARTICLE III—Election of Officers

The Board of Directors shall annually elect from its own number a President, two Vice-Presidents, a Secretary and a Treasurer, who shall be officers of the Association, as well as of the Board. The President-elect shall be installed at the annual meeting following that at which he was elected.

The Board of Directors shall, at its first meeting, elect also a President to serve for the immediate year.

ARTICLE IV—Committees

SECTION 1. The Board of Directors shall appoint an Executive Committee of nine directors of which the President and the Secretary shall be members ex-officio, to which shall be entrusted all the executive work of the Association. In the choice of at least one, and possibly two, of these nine directors, acquaintanceship with the local conditions at the next meeting place shall be considered.

SEC. 2. The President, with the approval of the Executive Committee, is empowered to appoint such committees and representatives as may be necessary for scientific and educational work, and for the holding of meetings and congresses.

SEC. 3. The Board of Directors shall appoint a Program Committee of five directors, to be divided into five groups of one each, to serve one, two, three, four and five years, the duration of office to be determined by lot; thereafter one member shall be elected each year, for a term of five years. This committee shall have entire charge of the program, and shall complete the same, with the aid of the President and the Chairmen of the various sections, not later than two months after the close of the last annual meeting.

ARTICLE V—Quorum

Seven directors shall constitute a quorum of the Board.

ARTICLE VI—Meetings

There shall be at least one stated meeting of the Association, at a time and place to be fixed by the Board of Directors. Other meetings of the Association may be called by the Board of Directors at such times as it shall deem proper. The Board of Directors shall hold a stated meeting once a year during the Annual Meeting of the Associa-

tion. Other meetings of the Board of Directors may be called by the President, at the request in writing of seven Directors. The Executive Committee shall hold stated meetings during the months of January and June. Other meetings of the Executive Committee may be called by the President at any time, or at the request in writing of two members of the Committee.

ARTICLE VII—Moneys

The moneys received from membership dues and from all other sources shall be used for defraying the expenses of the Association, and for furthering the objects under the direction of the Board of Directors.

ARTICLE VIII—Amendment of Constitution

Propositions to amend the Constitution may be presented in writing at any meeting of the Board of Directors or of the Association; they shall be then referred to the Board of Directors for consideration and report. The Board of Directors shall report all propositions for amendment, whether submitted to it originally or by reference, at the meeting of the Association next following, when action may be taken; *provided, however*, that no proposition for amendment shall be voted upon within thirty days after its presentation, or without at least twenty days' notice of the meeting at which it is to come up for consideration, which notice shall set forth the proposed amendment in full. An affirmative vote of two-third the members present shall be required for adoption.

ARTICLE IX—Amendment of By-Laws

By-Laws may be amended in the same manner as the Constitution, or by a two-thirds vote of the members present at a meeting of the Board of Directors, provided that twenty days' notice in writing has been given of the proposed amendment in the call for the meeting.

ARTICLE X—Affiliated Organizations

Affiliated organizations shall pay annual dues of Five Dollars (\$5) each, entitling one official representative of each to the status of an individual member, except eligibility to elective offices.

The duty of an Official Representative of an Affiliated Organization shall be to promote co-operation in the study and prevention of infant mortality between his own and this Association, presenting to each a brief written report for this purpose.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY MEMBERSHIP LIST 1912

Honorary

France

Bertillon, Dr. Jacques.....Paris

GENERAL MEMBERSHIP

LIFE MEMBERS

Ford, Miss Stella D., Detroit, Mich.
Gitchell, Miss Katherine, Akron, Ohio
Hanna, Mr. and Mrs. H. M., Cleveland, Ohio
Knox, Mrs. J. H. Mason, Jr., Baltimore, Md.
Knox, Miss Katharine Bowdoin, Baltimore, Md.
Knox, J. H. Mason, 3rd, Baltimore, Md.
Mellon, Mr. A. W., Pittsburgh, Pa.
Oliver, Mr. Wm. B., Baltimore, Md.
Volker, Mr. Wm., Kansas City, Mo.
Wade, Mr. J. H., Cleveland, Ohio
White, Mr. R. J., Baltimore, Md.

AFFILIATED SOCIETIES

American Society of Superintendents of Training Schools for Nurses, New York City
Babies' Dairy Association, New York City
Babies' Dispensary, Englewood, N. J.
Babies' Dispensary and Hospital, Cleveland, Ohio
Babies' Hospital of Newark, N. J.
Babies' Milk Dispensary, Buffalo, N. Y.
Babies' Dispensary Guild, Hamilton, Ontario
Babies' Milk Fund Association, Detroit, Michigan
Babies' Milk Fund Association, Louisville, Kentucky
Baltimore Association of Jewish Women
Bureau of Municipal Research, New York City
Certified Milk and Baby Hygiene Committee, California Association of College Alumnae, San Francisco
Child Hygiene Department, National Congress of Mothers, Des Moines, Iowa
Child Welfare Commission of Milwaukee, Wisconsin
Child Welfare Committee of the Red Cross, Burlington, Iowa
Children's Aid Association, Indianapolis, Indiana
Children's Aid Society of Pennsylvania, Philadelphia
Christian Service League of America, Wichita, Kansas
Committee on Childhood Health Exhibits, Boston, Mass.
Committee on Infant Social Service of the Women's Municipal League of Boston, Mass.
Committee on Prevention of Blindness of the New York Association for the Blind, New York City
Connecticut Children's Aid Society, Hartford
Council Milk and Ice Fund, Baltimore, Md.
Department of Health, Baltimore, Md.
Department of Health, Richmond, Va.
Department of Home Economics, New York State College of Agriculture, Cornell University, Ithaca, N. Y.
Farrand Training School Alumnae Association, Detroit, Michigan
Graduate Nurses' Association, Cleveland, Ohio
Health Bureau, Rochester, N. Y.

Hull House, Chicago, Illinois
 Infant Mortality Committee of the Associated Charities, Birmingham, Ala.
 Infant Welfare Association, New Haven, Conn.
 Infant Welfare Department, Duluth Consistory Scottish Rite Masons, Duluth, Minn.
 Infant Welfare Society of Chicago, Illinois
 Infant Welfare Society of Minneapolis, Minn.
 Instructive District Nursing Association, Columbus, Ohio
 Ladies' Literary Club of Salt Lake City, Utah
 Maryland Association for Study and Prevention of Infant Mortality, Baltimore
 Maryland Society for the Prevention of Blindness, Baltimore
 Maryland State Association of Graduate Nurses, Baltimore
 Massachusetts Milk Consumers' Association, Boston
 Metropolitan Life Insurance Company, Industrial Department, New York City
 Milk and Baby Hygiene Association, Boston, Mass.
 Missouri State Nurses' Association, St. Louis
 New Orleans Pure Milk Society, Louisiana
 New York Diet Kitchen Association, New York City
 New York Milk Committee, New York City
 New York State Nurses' Association, Utica
 North Carolina State Board of Health, Raleigh
 Ohio State Association of Graduate Nurses, Massillon
 Providence District Nursing Association, Rhode Island
 Saint Margaret's House and Hospital, Albany, N. Y.
 The American Nurses' Association, New York City
 The Diet Kitchen of the Oranges, Orange, N. J.
 Utah Congress of Mothers, Salt Lake City
 Visiting Nurse Association, Cincinnati, Ohio
 Visiting Nurse Association, Cleveland, Ohio
 Visiting Nurse Association, Denver, Colorado
 Visiting Nurse Association, Detroit, Michigan
 Visiting Nurse Association, Elizabeth, N. J.
 Visiting Nurse Association, Eau Claire, Wisconsin
 Visiting Nurse Association, Milwaukee, Wisconsin
 Visiting Nurse Association, Waterbury, Conn.
 Woman's Club, Chicago, Ill.
 Woman's Medical Club, Chicago, Ill.
 Woman's Club, Colton, California

GENERAL MEMBERSHIP

Canada

Babies' Dispensary Guild.....12 Duell Ave., Hamilton, Ontario
 Dyke, Miss E. H.....Supt. of Visiting Nurses, Dept. of Health, Toronto
 Blackader, Dr. A. D.....236 Mountain St., Montreal
 Clark, Miss Mary H.....37 Douglas St., Beacon Hill, Victoria, B. C.
 McCullough, Dr. John W.....Sec'y Prov. Board of Health, Toronto
 MacMurchy, Dr. Helen.....133 East Bloor St., Toronto
 Mackenzie, Miss Mary A.....578 Somerset St., Ottawa
 Moody, Dr. A. W.....430½ Main St., Winnipeg, Manitoba
 Pelletier, Dr. Elzcar.....Sec'y Board of Health, Province of Quebec, Montreal
 Wilson, Miss Frederica.....Lady Supt. Winnipeg General Hospital
 Training School for Nurses, Manitoba
 Wodehouse, Dr. Robert Elmer.....Provincial Board of Health, Fort William, Ontario

Austria

Von Pirquet, Dr. Clemens.....Kinderklinik, Vienna

China

Hume, Dr. Edward H.....The Yale Hospital, Changsha

Syria

Dorman, Dr. Henry G.....Syrian Protestant College, Beirut
 Moore, Prof. Franklin.....American College, Beirut

England

Broadbent, Ald. Benjamin.....Gatesgarth, Lindley, Huddersfield

Scotland

Boyd, Mr. T. Hunter.....70 Bothwell St., Glasgow

Philippine Islands

Pond, Dr. Eleanor J.....The Mary Johnston Hospital, Manila

Alabama

Infant Mortality Committee of the As-528 Chamber of Commerce Building,
ciated Charities (Aml.).....Birmingham

Parke, Dr. Thomas D.....415 First National Bank Building,
Birmingham

California

Ash, Dr. Rachel L.....Galen Building, San Francisco

Brown, Dr. Adelaide.....240 Stockton St., San Francisco

Certified Milk and Baby Hygiene Com-
mittee, Assoc. of Collegiate Alumnae

(Aml.).....San Francisco

Earl, Miss Alice.....2014 McClure St., Oakland

Fleischner, Dr. H. C.....350 Post St., San Francisco

Gray, Mr. R. S.....Commonwealth Club, 153 Kearney St.,
San Francisco

Graupner, Mrs. A. E.....2000 Jackson St., San Francisco

Jenkins, Mr. H. O.....Palo Alto

Johnson, Dr. P. V. K.....815 Wright & Callender Building, San
Francisco

McBride, Dr. J. H.....489 Bellefontaine St., Pasadena

McCleave, Dr. Thomas C.....2844 Garber St., Berkeley

Moditt, Dr. Herbert C.....240 Stockton St., San Francisco

Polotto, Miss Jessica B.....University of California, Berkeley

Powers, Dr. L. M.....Commissioner of Health, Los Angeles

Powell, Dr. Thomas.....313 West Third St., Los Angeles

Toviss, Mrs. Wm. S.....Box 747 Bakersfield

Willits, Dr. Emma K.....Galen Building, San Francisco

Woman's Club.....Colton

Colorado

Gengenbach, Dr. Frank P.....1434 Glenarm Place, Denver

Meyhew, Mrs. D. P.....735 N. Cascade Ave., Colorado Springs

Visiting Nurse Association (Aml.).....1434 Glenarm Place, Denver

Whitney, Dr. H. B.....320 Temple St., Denver

Connecticut

Bartlett, Mrs. C. J.....200 York St., New Haven

Blumer, Dr. George.....64 Turnbull St., New Haven

Carle, Mr. Robert W.....P. O. Drawer D, New Haven

Carmalt, Dr. W. H.....261 St. Roman St., New Haven

Children's Aid Society (Aml.).....60 Brown-Thomson Building, Hartford

Fisher, Prof. Irving.....460 Prospect St., New Haven

Goodenough, Dr. E. W.....44 Leavenworth St., Waterbury

Goodrich, Dr. C. A.....5 Haynes St., Hartford

Gregory, Mrs. A. W.....63 Gillett St., Hartford

Hillyer, Mrs. A. R.....61 Elm St., Hartford

Infant Welfare Association (Aml.).....301 Prospect St., New Haven

Mead, Dr. Kate C.....165 Broad St., Middletown

Parker, Mr. G. A.....P. O. Box No. 1027, Hartford

Pendleton, Miss Clarissa L.....St. John's Church House, Stamford

Steele, Dr. H. Merriman.....226 Church St., New Haven

Steiner, Dr. W. R.....4 Trinity St., Hartford

Stowe, Miss Emma L.....Supt. Connecticut Training School for

Nurses, New Haven Hospital

Visiting Nurse Association (Aml.).....37 Central Ave., Waterbury

Wanning, Mr. F. D.....Derby

Wilkinson, Miss Martha J.....34 Charter Oak Ave., Hartford

District of Columbia

Brown, Miss Elizabeth.....	923 H St., N. W., Washington
Dickinson, Mrs. H. C.....	Thirtieth St., Azadia Park, Washington
Gardner, Miss Helen W.....	The Portner, Washington
Gwynn, Miss Mary.....	1740 N St., N. W., Washington
Langworthy, Dr. Charles Ford.....	Department of Agriculture, Washington
Lathrop, Miss Julia C.....	Chief, Federal Children's Bureau, Wash- ington
Magruder, Dr. G. Lloyd.....	Stoneloigh Court, Washington
Nagel, Mrs. Charles.....	1731 K St., Washington
Perkins, Mrs. Henry Cleveland.....	1701 Connecticut Ave., Washington
Schereschewsky, Dr. J. W.....	Public Health and Marine Hospital Service, Washington
Stoutenburgh, Dr. John A.....	116 Second St., S. E., Washington
Strong, Miss Isabel.....	2001 I St., N. W., Washington
Wilbur, Dr. Cressy L.....	Chief Statistician, Bureau of the Cen- sus, Washington
Wilbur, Mrs. Cressy L.....	1374 Harvard St., Washington
Woodward, Dr. Wm. C.....	1706 Lanier Place, Washington

Georgia

Boyd, Mrs. W. A.....	104 Washington St., Atlanta
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Illinois

Aht, Dr. Isaac H.....	4326 Vincennes Ave., Chicago
Addams, Miss Jane.....	Hull House, Chicago
Ahrens, Miss Minnie H.....	104 S. Michigan Ave., Chicago
Aldis, Mrs. Arthur.....	Lake Forest
Alexander, Mr. W. G.....	1004 Chicago Ave., Evanston
Allin, Dr. Frank W.....	4206 Monroe St., Chicago
Amberg, Dr. Samuel.....	Children's Memorial Hospital, Chicago
Atkinson, Mrs. Charles.....	Lake Forest
Bailey, Mr. Edward P.....	Chicago Savings Bank and Trust Co., Chicago
Ball, Mr. Charles B.....	Department of Health, Chicago
Belfeld, Dr. Albert Henry.....	31 North State St., Chicago
Bell, Mrs. Laird.....	31 Scott St., Chicago
Becker, Mr. A. G.....	Cor. Monroe and La Salle Sts., Chicago
Blatt, Dr. Maurice L.....	300 East 47th St., Chicago
Blyth, Dr. David R.....	23 South Clinton St., Chicago
Bowen, Mrs. Louise de Koven.....	1430 Astor St., Chicago
Breckenridge, Miss S. P.....	Green Hall, University of Chicago
Breeze, Miss Jessie.....	3518 Congress St., Chicago
Brockett, Miss Myra.....	818 Wing St., Chicago
Brown, Dr. Alice B.....	748 Oak Ave., Winnetka
Burling, Mrs. Edward.....	Winnetka
Cassellberry, Mrs. Allan H.....	1830 Calumet Ave., Chicago
Chancellor, Dr. Philip S.....	Lessing Annex, Chicago
Chander, Dr. Harriet Day.....	233 South Edward St., Decatur
Cheney, Dr. Henry W.....	1230 East 63rd St., Chicago
Churchill, Mrs. F. S.....	1259 North State St., Chicago
Churchill, Dr. F. S.....	1259 North State St., Chicago
Clark, Mr. James L.....	23 South Clinton St., Chicago
Cotton, Dr. F. S.....	3218 Jackson Boulevard, Chicago
Crerar, Mrs. John.....	1001 Prairie Ave., Chicago
Davis, Dr. Ella T.....	2314 North Clark St., Chicago
De Lee, Dr. J. B.....	5028 Ellis Ave., Chicago
Dodson, Dr. John M.....	1109 Venetian Building, Chicago
Dunn, Mrs. Morrill.....	125 East Chestnut St., Chicago
Erb, Mrs. F. E.....	6815 Drexel Ave., Chicago
Evans, Dr. W. A.....	103 State St., Chicago
Fall, Mrs. Horton, Jr.....	1114 Hillman Ave., Evanston
Farwell, Mrs. Fanny D.....	Lake Forest
Fielding, Major-General Edward.....	The Volunteers of America, 110 South Dearborn St., Chicago
Foley, Miss Edna L.....	Supt. Visiting Nurse Association, 104 South Michigan Ave., Chicago
Ford, Mr. Joseph A.....	Tribune Building, Chicago
Fulmer, Miss Harriet.....	5329 Lake Ave., Chicago
Furst, Mr. Edward.....	1340 Astor St., Chicago

Gibbs, Mrs. Florence O.....	1748 Ogden Ave., Chicago
Grulee, Dr. Clifford G.....	3974 Lake Ave., Chicago
Hall, Dr. Winfield S.....	Northwestern University Med. School, Chicago
Hamill, Mrs. R. W.....	Clarendon Hills
Hay, Miss Helen Scott.....	500 Monroe St., Chicago
Hedger, Dr. Caroline.....	20 East Madison St., Chicago
Heinemann, Dr. P. G.....	Bacteriological Laboratory, University of Chicago
Helmholz, Dr. Henry F.....	1630 Ashland Ave., Evanston
Henderson, Mrs. Charles Richmond.....	Chicago
Henderson, Prof. Charles Richmond.....	University of Chicago
Hess, Dr. J. H.....	5514 Indiana Ave., Chicago
Hoyworth, Mrs. James O.....	Lake Forest
Hibbard, Mr. Wm. G., Jr.....	State Street Bridge, Chicago
Hillard, Miss Helen L.....	Glencoe
Hilton, Mr. Henry H.....	2301 Prairie Ave., Chicago
Hopkins, Rev. Wm. H.....	11949 Eggleston Ave., Chicago
Houghteling, Mrs. James L.....	850 Lincoln Park, Chicago
Hughes, Mrs. Frances L.....	Lake Forest
Hull House (A.M.I.).....	800 South Halsted St., Chicago
Infant Welfare Society of Chicago (A.M.I.).....	104 South Michigan Ave., Chicago
Johnstone, Miss Margaret M.....	St. Luke's Hospital, Chicago
Jones, Miss Gwethalyn.....	Lake Forest
Jordan, Prof. Edwin O.....	University of Chicago
Keyes, Mrs. Rollin W.....	1217 Judson Ave., Evanston
Kirk, Mrs. Walter.....	76 East Cedar St., Chicago
Kingsley, Mr. Sherman C.....	Director, Elizabeth McCormick Memor- ial Fund, 315 Plymouth Court, Chicago
Kochler, Dr. Gottfried.....	Department of Health, Chicago
Lackner, Dr. H.....	103 State St., Chicago
Lee, Mrs. John H. S.....	Judson Ave., Evanston
Lewis, Mr. E. H.....	Lewis Institute, Chicago
Linn, Mrs. Wm. R.....	2709 Michigan Ave., Chicago
McCormick, Mr. Harold F.....	Suite 1212 Chicago Stock Exchange Building, Chicago
McCormick, Mrs. Harriet H.....	50 East Huron St., Chicago
McCormick, Mrs. Medill.....	500 Diversey Parkway, Chicago
McGann, Mrs. Grace F.....	Lake Forest
McKinlock, Mrs. George A.....	Lake Forest
McLaury, Mrs. C. W.....	4801 Greenwood Ave., Chicago
Michael, Dr. May.....	4625 Prairie Ave., Chicago
Milligan, Dr. Josephine.....	110 West State St., Jacksonville
Oheig, Miss C. Irene.....	Sherman Hospital, Mgin
Palmer, Mrs. Robert F.....	2634 Lake View Ave., Chicago
Poole, Mrs. R. H.....	Minore, Lake Forest
Rew, Mrs. Irwin.....	1128 Ridge Ave., Evanston
Rosenwald, Mr. Julius.....	% Sears & Roebuck, Chicago
Scott, Mrs. Frederick H.....	1332 Chicago Ave., Evanston
Scott, Mrs. Robert L.....	404 Lake St., Evanston
Shaw, Mrs. Howard Van Doren.....	Lake Forest
Small, Prof. S. W.....	University of Chicago
Stewart, Miss Mary C.....	Henrotin Memorial Hospital, Chicago
Taylor, Mr. Graham.....	955 Grand Ave., Chicago
Tents, Mrs. Mary B.....	544 East 43rd St., Chicago
Teter, Mr. Lucius.....	7 West Madison St., Chicago
Thompson, Mrs. Leverett.....	Lake Forest
Thurston, Mr. Henry W.....	7233 Harvard Ave., Chicago
Towne, Mrs. John D.....	1004 Greenwood Boulevard, Evanston
Tyson, Mrs. Russell.....	20 East Gothic St., Chicago
Walker, Dr. Samuel.....	670 Lincoln Parkway, Chicago
Walsh, Miss Adelaide.....	Children's Memorial Hospital, Chicago
Webster, Mrs. Edward H.....	1332 Chicago Ave., Evanston
Webster, Dr. George W.....	Pres. State Board of Health, Chicago
Woman's Club (A.M.I.).....	214 East Ontario St., Chicago
Woman's Medical Club (A.M.I.).....	Chicago
Woodruff, Dr. Thomas A.....	72 Madison St., Chicago
Wynekoop, Dr. A. L. Lindsay.....	3406 West Monroe St., Chicago
Vittum, Mrs. Harriet L.....	1400 Augusta St., Chicago
Young, Dr. George B.....	Commissioner of Health, Chicago
Zimmerman, Mr. W. C.....	Steinway Building, Chicago

Indiana

- Children's Aid Association (Aml.)....Baldwin Block, Cor. Market and Delaware Sts., Indianapolis
 Children's Free Dispensary and Hospital Association (Aml.).....116 Garfield Court, South Bend
 Powell, Dr. Nettie B.....Marion
 Mumford, Dr. W. B.....504 Newton-Claypool Building, Indianapolis
 Rappaport, Mr. L. M.....322 Law Building, Indianapolis
 Wiggan, Mr. A. B.....North Vernon

Iowa

- Child Hygiene Dept. National Congress of Mothers (Aml.).....2141 W. Grand Ave., Des Moines
 Child Welfare Committee of the Red Cross Society (Aml.).....502½ Jefferson St., Burlington
 Seymour, Mr. R. F.....Cedar Falls

Kansas

- Crumbine, Dr. S. J.....Sec'y State Board of Health, Topeka
 Christian Service League of America 113 North Lawrence St., Wichita (Aml.).....
 Day, Miss Edna D.....Dept. of Home Economics, University of Kansas, Lawrence
 Hosford, Mr. George Lewis.....113 North Lawrence Ave., Wichita

Kentucky

- Babies' Milk Fund Association (Aml.).....215 East Walnut St., Louisville
 Barbour, Dr. Philip F.....1221 Gavin Place, Louisville
 Barret, Dr. Harvey P.....In care of Mr. Wilson, Crescent Hill
 Butler, Miss Harriet L.....Hindman, Knott Co.
 Shaver, Miss Elizabeth.....215 East Walnut St., Louisville
 Smith, Mrs. Letchworth.....Ann Acres, Mocking Bird Valley, R. F. D. No. 1, Louisville
 Tuley, Dr. Henry Mos.....111 West Kentucky St., Louisville

Louisiana

- Butterworth, Dr. W. W.....Tulane University of Louisiana, P. O. Box No. 261, New Orleans
 Hart, Mr. W. O.....134 Carondelet St., New Orleans
 New Orleans Pure Milk Society (Aml.).....1200 Maison Blanche, New Orleans

Maine

- Everett, Dr. Harold J.....727 Congress St., Portland
 Gerrish, Dr. F. H.....675 Congress St., Portland
 Upson, Mr. William J.....Bethel
 Webster, Dr. F. P.....Portland
 Young, Dr. A. G.....Sec'y State Board of Health, Augusta

Maryland

- Abel, Mrs. John J.....Charles St. Ext., Baltimore
 Abercrombie, Dr. R. T.....Homewood Apartments, Baltimore
 Athey, Mrs. C. H.....100 S. Patterson Park Ave., Baltimore
 Baltimore Association of Jewish Women (Aml.).....2226 Linden Ave., Baltimore
 Baltimore City Dept. of Health (Aml.).....Baltimore
 Barker, Mrs. L. F.....1035 North Calvert St., Baltimore
 Belt, Mrs. W. H. G.....813 Reservoir St., Baltimore
 Bettler, Dr. Frederic V.....State of Maryland Dept. of Health, Baltimore
 Bliss, Mrs. Wm. J. A.....1017 St. Paul St., Baltimore
 Bloodgood, Mrs. J. C.....504 North Charles St., Baltimore
 Bonaparte, Mr. Charles J.....216 St. Paul St., Baltimore
 Bowdoin, Mrs. W. G.....1106 North Charles St., Baltimore
 Carey, Mrs. A. Morris.....1004 Cathedral St., Baltimore
 Carey, Mrs. Francis K.....599 Cathedral St., Baltimore

Cochran, Mr. Wm. F., Jr.	Woodbrook
Cohen, Mr. Mendes	825 North Charles St., Baltimore
Cone, Dr. Claribel	The Marlborough, Baltimore
Cook, Mrs. George Hamilton	1001 St. Paul St., Baltimore
Corkran, Mrs. B. W.	200 Goodwood Gardens, Roland Park
Council, Milk and Ice Fund (Aml.)	
Mrs. Isidore Ash, President	The Navarre, Baltimore
Dobbin, Mrs. Thomas M.	1308 Bolton St., Baltimore
Dorsey, Mrs. John R.	730 Roland Ave., Baltimore
Ellicott, Mrs. Charles	Melvale
Ellicott, Mrs. William	714 St. Paul St., Baltimore
Epstein, Mr. Jacob	2532 Eutaw Place, Baltimore
Finney, Dr. J. M. T.	1300 Eutaw Place, Baltimore
Follis, Dr. R. H.	3 East Read St., Baltimore
France, Mrs. J. C.	219 West Lanvale St., Baltimore
French, Miss A. M.	219½ East North Ave., Baltimore
Friedenwald, Dr. Julius	1013 North Charles St., Baltimore
Fulton, Dr. John S.	2211 St. Paul St., Baltimore
Futcher, Dr. T. B.	23 West Franklin St., Baltimore
Garrett, Mr. Robert	506 Continental Building, Baltimore
Gibbs, Mr. John S., Jr.	1026 North Calvert St., Baltimore
Gibbs, Mrs. Rufus M.	1214 North Charles St., Baltimore
Glavin, Mrs. Henry B.	1230 St. Paul St., Baltimore
	(Kentmore, Boyce, Virginia)
Gorter, Dr. Nathan R.	1 West Biddle St., Baltimore
Greenbaum, Dr. Harry S.	1014 Eutaw Place, Baltimore
Guggenheimer, Miss Almee	2064 Linden Ave., Baltimore
Gutman, Mrs. Louis K.	1321 Eutaw Place, Baltimore
Hamburger, Mrs. Louis P.	1207 Eutaw Place, Baltimore
Hecht, Mrs. Albert	2408 Eutaw Place, Baltimore
Heinemann, Mrs. Milton	2220 Eutaw Place, Baltimore
Hendley, Mrs. Charles W.	Homewood Apartments, Baltimore
Hirschfelder, Dr. Arthur D.	2245 Linden Ave., Baltimore
Hochschild, Mrs. Max	1922 Eutaw Place, Baltimore
Hoffman, Mrs. R. Curzon	1203 St. Paul St., Baltimore
Hooker, Dr. Donald R.	"Cedar Lawn," Homeland Ave., Station II, Govans
Hooper, Mrs. James H.	St. Paul and 23rd Sts., Baltimore
Howland, Dr. John	Johns Hopkins Hospital, Baltimore
Hunner, Dr. Guy L.	2305 St. Paul St., Baltimore
Jacobs, Dr. Henry Barton	11 Mt. Vernon Place W., Baltimore
Jones, Dr. C. Hampson	2529 St. Paul St., Baltimore
Katz, Mrs. A. Ray	2532 Eutaw Place, Baltimore
Keyser, Mr. R. Brent	Keyser Building, Baltimore
Knass, Dr. Robert K.	1001 W. Lanvale St., Baltimore
Knipp, Master George H.	Athol Ave., Station D., Baltimore
Knipp, Miss Gertrude B.	1821 Park Ave., Baltimore
Knipp, Dr. Harry B.	Fremont and Lanvale Sts., Baltimore
Knox, J. H. Mason III.	804 Cathedral St., Baltimore
Knox, Dr. J. H. Mason, Jr.	804 Cathedral St., Baltimore
Knox, Mrs. J. H. Mason, Jr.	804 Cathedral St., Baltimore
Knox, Miss Catherine Bowdoin	804 Cathedral St., Baltimore
Lauer, Mrs. Leon	2024 Eutaw Place, Baltimore
Lockwood, Dr. William F.	8 East Bager St., Baltimore
MacMahon, Miss Amy B.	Johns Hopkins Hospital, Baltimore
McLanahan, Mrs. Austin	7½ Alexander Brown & Sons, Baltimore
Magruder, Mr. J. W.	15 East Pleasant St., Baltimore
Marburg, Mrs. Theodore	14 West Mt. Vernon Place, Baltimore
Marburg, Mr. Theodore	14 West Mt. Vernon Place, Baltimore
Maryland Association for Study and Prevention of Infant Mortality (Aml.)	15 East Pleasant St., Baltimore
Maryland Society for the Prevention of Blindness (Aml.)	904 North Charles St., Baltimore
Maryland State Association of Grad- uate Nurses (Aml.) (1912)	1211 Cathedral St., Baltimore
Mitchell, Dr. Charles W.	9 East Chase St., Baltimore
O'Donovan, Dr. Charles	5 East Read St., Baltimore
Oliver, Mr. William B.	The Washington Apartments, Baltimore
Oppenheim, Mrs. Eli	2042 Eutaw Place, Baltimore
Pleasants, Dr. J. Hall	806 University Parkway, Baltimore
Poultney, Mrs. William D.	Chattolance, Baltimore County

Price, Dr. Marshall L., Sec'y State Department of Health.....	6 East Franklin St., Baltimore
Price, Miss Annabel Lee.....	Algburth Park, Towson
Ramsay, Mr. John B.....	1218 St. Paul St., Baltimore
Ruhrak, Dr. John.....	839 North Dutaw St., Baltimore
Rynick, Mrs. George M.....	Oshorn Ave., Catonsville
Seegar, Mrs. J. K. B. II.....	1529 Park Ave., Baltimore
Seegar, Dr. J. K. B. II.....	1529 Park Ave., Baltimore
Semmes, Mrs. John W.....	10 East Bager St., Baltimore
Sherwood, Dr. Mary.....	The Arundel Apartments, Baltimore
Shoemaker, Mrs. Edward.....	1031 North Calvert St., Baltimore
Shoemaker, Mr. S. M.....	Eccleston, Baltimore County
*Smith, Mr. A. Webster.....	Maryland Club, Baltimore
Sonneborn, Mrs. Sigmund.....	2420 Dutaw Place, Baltimore
Sterling, Dr. W. Blunche.....	1814 North Charles St., Baltimore
Taylor, Mrs. A. N.....	1107 St. Paul St., Baltimore
Thomas, Dr. Henrietta M.....	1718 John St., Baltimore
Todd, Dr. William J.....	Mount Washington, Baltimore County
Turnbull, Mrs. A. Nesbit.....	1629 Park Ave., Baltimore
Urhart, Dr. Richard A.....	48 West Biddle St., Baltimore
Walker, Mrs. Amella H.....	25 West Chase St., Baltimore
Welch, Dr. William H.....	807 St. Paul St., Baltimore
Welsh, Dr. Lillian.....	The Arundel Apartments, Baltimore
Westheimer, Mrs. Henry.....	2322 Dutaw Place, Baltimore
Whitely, Mr. J. Holmes.....	1008 North Charles St., Baltimore
Whitridge, Mrs. Susan M.....	818 University Parkway, Baltimore
Wight, Mrs. John H.....	Garrison P. O., Baltimore County
Williams, Dr. J. Whitridge.....	1128 Cathedral St., Baltimore
White, Mr. Richard J.....	10 South St., Baltimore
Young, Dr. Hugh H.....	330 North Charles St., Baltimore

*Deceased

Massachusetts

Arms, Dr. Burdett L.....	Director Bacteriological Laboratory, Health Department, Boston
Bowditch, Dr. Henry I.....	506 Beacon St., Boston
Cabot, Dr. Richard C.....	190 Marlboro St., Boston
Carrigan, Dr. Thomas C.....	407 State Mutual Building, Worcester
Codman, Mrs. B. C.....	227 Beacon St., Boston
Committee on Childhood Health Ex-	
hibits (Afm.).....	110 Mount Vernon St., Boston
Committee on Infant Social Service of the Women's Municipal League of Boston (Afm.).....	49 Beacon St., Boston
Connolly, Dr. John M.....	419 Boylston St., Boston
Dole, Mr. Robert H.....	95 Milk St., Boston
Dunn, Dr. Charles Hunter.....	220 Marlboro St., Boston
DeNormandie, Dr. Robert L.....	31 Massachusetts Ave., Boston
Eagan, Miss Sarah E.....	The Floating Hospital, 54 Devonshire St., Boston
Emmons, Dr. Arthur B. II.....	86 Bay State Road, Boston
Gallivan, Dr. William J.....	Health Dept., 100 Summer St., Boston
Greenwood, Mr. Arthur W.....	Marblehead
Harper, Miss Grace S.....	General Secretary, Massachusetts Infant Asylum, Boston
Howard, Dr. Arthur A.....	416 Marlborough St., Boston
Huntington, Dr. James Lincoln.....	8 Gloucester St., Boston
Kisker, Dr. Laura B.....	127 Edgmont St., Brookline
Learned, Dr. William T.....	Fall River
Lucas, Dr. William Palmer.....	261 Beacon St., Boston
MacCarthy, Dr. Francis L.....	11 Pinckney St., Boston
Marshall, Mr. James.....	Fall River
Marvell, Dr. Mary W.....	242 Highland Ave., Fall River
Massachusetts Milk Consumers' Association (Afm.).....	49 Beacon St., Boston
Maynard, Mr. Harlan J.....	200 Summer St., Boston
Milk and Baby Hygiene Assn. (Afm.).....	8 Beacon St., Boston
Morse, Dr. John Lovett.....	70 Bay State Road, Boston
Parkard, Dr. Mary S.....	R. F. D. No. 2, Rehoboth
Pearsons, Miss Sara E.....	Massachusetts General Hospital, Boston
Putnam, Dr. Charles P.....	63 Marlboro St., Boston
Rotch, Dr. Thomas Morgan.....	107 Commonwealth Ave., Boston
Sanford, Miss Kate I.....	Taunton

Sweney, Mr. George W.	221 Columbus Ave., Boston
Talbot, Dr. Fritz B.	311 Beacon St., Boston
Ware, Mrs. Charlotte B.	74 Mount Vernon St., Boston
Wheelwright, Mr. W. B.	95 Milk St., Boston

Michigan

Babies' Milk Fund Association (A.M.L.)	41 East Warren Ave., Detroit
Barbour, Mrs. W. T.	Birmingham
Bowen, Mrs. Lem W.	Detroit
Bowen, Mr. Lem W.	Detroit
Cooley, Dr. Thomas B.	602 Fine Arts Building, Detroit
Cowie, Dr. David Murray	University of Michigan, Ann Arbor
Curtis, Dr. Henry S.	Olivet
Douglas, Dr. Charles	959 Jefferson Ave., Detroit
Duffield, Dr. Francis	248 Seminole Ave., Detroit
Ferrand Training School Alumnae Association (A.M.L.)	Harper Hospital, Detroit
Ford, Miss Stella D.	1130 Woodward Ave., Detroit
Jennings, Dr. Charles G.	435 Jefferson Ave., Detroit
Johnston, Dr. Collins H.	87 Monroe Ave., Grand Rapids
Joy, Mrs. H. B.	Fairacres, Grosse Pointe Farms
Kiefer, Dr. Guy L.	1260 Brush St., Detroit
La Farge, Miss Zoe	69 Lafayette Boulevard, Detroit
McGregor, Mrs. Tracy	239 Brush St., Detroit
Miner, Dr. F. B.	400 S. Saginaw St., Flint
Nichols, Mrs. J. Brooks	Detroit
Parker, Mrs. Walter R.	285 Seminole Ave., Detroit
Phelps, Miss Jessie	16 N. Summit St., Ypsilanti
Pope, Mrs. G. D.	212 Iroquois Ave., Detroit
Pope, Mrs. Willard	37 Putnam Ave., Detroit
Sinclair, Miss Helen	The Upper Peninsula Hospital for the Insane, Newberry
Visiting Nurse Association (A.M.L.)	924 Brush St., Detroit

Minnesota

Crosby, Miss Caroline M.	1616 Washington Ave. N., Minneapolis
Hoag, Dr. Ernest B.	442 Summit Ave., St. Paul
Holtzemann, Mr. J. D.	417 Cedar Ave., Minneapolis
Infant Welfare Department Duluth Consistory Scottish Rite Masons (A.M.L.)	Manicome Temple, Duluth
Infant Welfare Society (A.M.L.)	820 Donaldson Building, Minneapolis
Lowry, Mrs. Horace	2 Groveland Terrace, Minneapolis
Malley, Miss Nelly B.	% Minneapolis Tribune, Minneapolis
Ramsey, Dr. Walter R.	Lowry Annex, St. Paul
Schlutz, Dr. Frederic W.	820 Donaldson Building, Minneapolis
Sedgwick, Dr. J. P.	820 Donaldson Building, Minneapolis
Woodworth, Dr. Elizabeth A.	3201 Clinton Ave., Minneapolis

Mississippi

Watkins, Dr. J. L.	Jackson
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Missouri

Bishop, Dr. Francis L.	4271 Washington Ave., St. Louis
Beyer, Dr. A. S.	Kings Highway and Delmar Ave., St. Louis
Brady, Dr. Julius M.	1587 Union Ave., St. Louis
DeLamater, Dr. Hasbrouck	Assistant Health Commissioner, Kansas City
Frein, Miss Anna G.	2221 Locust St., St. Louis
Greene, Mrs. Charles W.	814 Virginia Ave., Columbia
Lynch, Mr. Hal H.	1115 Charlotte St., Kansas City
McClure, Miss Margaret	2221 Locust St., St. Louis
Missouri State Nurses' Asso. (A.M.L.)	5808 Delmar Boulevard, St. Louis
Moore, Miss Elizabeth	3125 Lafayette Ave., St. Louis
Mosher, Dr. George Clark	605 Bryant Building, Kansas City
Neff, Dr. Frank C.	900 Rialto Building, Kansas City
Saunders, Dr. Edward W.	1601 South Grand Ave., St. Louis
Schorer, Dr. Edwin H.	1011 Rialto Building, Kansas City
Stanley, Miss Louise	1215 Hudson Ave., Columbia
Zahorsky, Dr. John	1460 South Grand Ave., St. Louis

Nebraska

Lynch, Dr. Della A.....1707 Dodge St., Omaha
 Nebraska State Association of Graduate
 Nurses (A.M.I.).....Omaha

New Jersey

Alexander, Mrs. A.....Castle Point, Hoboken
 Babies' Hospital Milk Dispensary
 (A.M.I.).....437 High St., Newark
 Babies' Dispensary (A.M.I.).....Englewood
 Bell, Dr. J. Finley.....Englewood
 Colt, Dr. Henry L.....277 Mount Prospect Ave., Newark
 Colgate, Mrs. Sidney M.....363 Center St., Orange
 Diet Kitchen of the Oranges (A.M.I.).....234 Essex Ave., Orange
 Folsom, Miss Eleanor.....Llewellyn Park, Orange
 Francisco, Mr. Stephen.....Fairfield Dairy Co., Montclair
 Hogan, Mr. Edward P.....7 Second St., Weehawken
 Holmes, Dr. George J.....17 Elizabeth Ave., Newark
 Levy, Dr. Julius.....191 Littleton Ave., Newark
 MacNutt, Dr. J. Scott.....227 Main St., Orange
 Marvel, Dr. Philip.....1616 Pacific Ave., Atlantic City
 Moore, Mrs. Paul.....Madison Ave., Morristown
 Musselman, Miss Nellie S.....105 South Little Rock Ave., Ventnor
 Nicholson, Mrs. Wm. H., Jr.....327 South Second St., Millville
 Stewart, Dr. W. Blair.....Cor. North Carolina and Pacific Aves.,
 Atlantic City
 Synnott, Dr. Martin J.....34 South Fullerton Ave., Montclair
 Stern, Dr. Arthur.....234 East Jersey St., Elizabeth
 Visiting Nurse Association (A.M.I.).....Elizabeth
 Watkins, Miss Clara M.....Supt. Babies' Hospital Milk Dispensary,
 437 High St., Newark

New York

American Society of Superintendents of
 Training Schools for Nurses (A.M.I.).....423 West 118th St., New York City
 Babbitt, Miss Ellen C.....Russell Sage Foundation, 105 East
 22nd St., New York City
 Babies' Dairy Association (A.M.I.).....8 West 49th St., New York City
 Babies' Milk Dispensary of Buffalo
 (A.M.I.).....241 Swan St., Buffalo
 Baker, Dr. S. Josephine.....Department of Health, New York City
 Benedict, Miss May D.....Mechanics' Institute, Rochester
 Benson, Dr. Rucl A.....8 West 40th St., New York City
 Biggs, Dr. Herman M.....113 West 57th St., New York City
 Bock, Dr. Franklin William.....133 Clinton Ave. S., Rochester
 Brink, Miss Carrie J.....140 East 20th St., New York City
 Brown, Dr. W. M.....272 Alexander St., Rochester
 Brudre, Mr. Robert W.....39½ Washington Square, New York
 City
 Bureau of Health (A.M.I.).....Rochester
 Bureau of Municipal Research (A.M.I.).....261 Broadway, New York City
 Button, Dr. Lucius L.....265 Alexander St., Rochester
 Clark, Miss Mary Vida.....105 East 22nd St., New York City
 Clarke, Dr. John M.....92 Lancaster St., Albany
 Clark, Dr. T. Wood.....240 Genesee St., Utica
 Committee on Prevention of Blindness
 of the New York Association for the
 Blind (A.M.I.).....105 East 22nd St., New York City
 Cornell University Home Economics De-
 partment, New York State College
 of Agriculture (A.M.I.).....Ithaca
 Darlington, Dr. Thomas.....44 West 59th St., New York City
 Faust, Dr. Louis.....19 Jay St., Schenectady
 Faust, Dr. William F.....22 Jay St., Schenectady
 Folks, Mr. Homer.....105 East 22nd St., New York City
 Fox, Mr. Henry J.....150 West 80th St., New York City
 Fox, Dr. Mortimer J., Jr.....150 West 86th St., New York City
 Frankel, Dr. Lee K.....1 Madison Ave., New York City
 Freeman, Dr. Rowland G.....211 West 57th St., New York City
 Fronczak, Dr. Francis E.....Health Commissioner, Buffalo
 Frost, Dr. Conway A.....8 Plant St., Utica

Geer, Miss Louise B.	19 Euclid Ave., Jamestown
Goler, Dr. George W.	Health Officer, Rochester
Goodrich, Miss Annie W.	New York State Department of Education, Albany
Gulfof, Dr. William H.	Register of Records, Department of Health, New York City
Hart, Dr. Hastings H.	105 East 22nd St., New York City
Hatch, Mr. Edward, Jr.	% Lord & Taylor, New York City
Heiman, Dr. Henry	30 West 88th St., New York City
Hess, Dr. Alfred F.	154 West 72nd St., New York City
Hill, Mr. Nicholas S., Jr.	100 William St., New York City
Hilton, Mrs. George P.	240 State St., Albany
Holden, Mrs. Edwin B.	323 Riverside Drive, New York City
Holt, Dr. L. Emmett	14 West 55th St., New York City
Jacobi, Dr. Abraham	10 East 47th St., New York City
Kerley, Dr. Charles G.	132 West 81st St., New York City
Koplik, Dr. Henry	30 East 62nd St., New York City
Kosmak, Dr. George	307 Second Ave., New York City
La Fetra, Dr. Linnaeus E.	113 East 61st St., New York City
Louis, Miss Marie	440 East 26th St., New York City
McKechnie, Miss Mary W.	423 West 118th St., New York City
Mason, Miss Mary R.	105 East 22nd St., New York City
Metropolitan Life Insurance Company.	
Industrial Department (A.M.I.)	New York City
Mills, Mr. William Wirt	249 Manor Road, West New Brighton
Mosher, Mr. H. T.	216 Alexander St., Rochester
New York Diet Kitchen Assn. (A.M.I.)	1 West 34th St., New York City
New York Milk Committee (A.M.I.)	105 East 22nd St., New York City
New York State Nurses' Assn. (A.M.I.)	419 West 144th St., New York City
North, Dr. Charles B.	30 Church St., New York City
Nutting, Miss M. Adelaide	Teachers' College, Columbia University
O'Connor, Father J. P.	12 Madison Place, Albany
Phelps, Mr. Edward Bunnell	141 Broadway, New York City
Potter, Dr. Philip S.	947 Westcott St., Syracuse
Rambo, Dr. William S.	43 North Plymouth Ave., Rochester
Robinson, Mrs. Theodore Douglas	Mahaque Farm, Mohawk, Herkimer Co.
Roosevelt, Mrs. Franklin H.	Hyde Park, Albany
Russell, Miss Martha M.	447 West 59th St., New York City
Russell, Dr. N. G.	460 Franklin St., Buffalo
Sage, Mrs. Isabel W.	Menando Road, Albany
Saint Margaret's House and Hospital (A.M.I.)	Albany
Sands, Dr. Georgiana	Port Chester
Schwarz, Dr. Herman	50 East 91st St., New York City
Seward, Mr. W. R.	218 Alexander St., Rochester
Shaw, Dr. Henry L. K.	361 State St., Albany
Southworth, Dr. Thomas S.	807 Madison Ave., New York City
Stoughton, Mr. Bradley	105 Broadway, New York City
Stowell, Dr. William Leland	160 West 73rd St., New York City
Straus, Mr. Nathan	27 West 72nd St., New York City
The American Nurses' Assn. (A.M.I.)	419 West 144th St., New York City
Thelberg, Dr. Elizabeth	Vassar College, Poughkeepsie
Van der Bogert, Dr. Frank	111 Union St., Schenectady
Van Ingen, Dr. Philip	125 East 71st St., New York City
Vorse, Mrs. Mary Heaton	88 Grove St., New York City
Wakeman, Mr. Arthur E.	72 Schenckhorn St., Brooklyn
Wheeler, Mr. Charles Child	111 Broadway, New York City
Wile, Dr. Ira S.	230 West 97th St., New York City
Willcox, Prof. Walter F.	Cornell University, Ithaca
Wilson, Mr. Paul C.	Bureau of Municipal Research, New York City
Winslow, Prof. C. B. A.	College of the City of New York
Winters, Dr. Joseph B.	25 West 37th St., New York City
Wood, Dr. Thomas D.	Columbia University, New York City
Wright, Mr. J. H.	55 Plymouth Ave., Rochester
Wykoop, Dr. H. J.	401 James St., Syracuse

North Carolina

State Board of Health (A.M.I.).....Raleigh

North Dakota

McCannell, Dr. A. J.....1145 South Main St., Minot

Ohio

Abbott, Mr. Gardner T.	1300 Schofield Building, Cleveland
Alcott, Mrs. C. B.	Stillman Road, Shaker Heights, Cleveland
Auer, Mr. F.	1209 West 112th St., Cleveland
Babies' Dispensary and Hospital (A.M.I.)	2500 East 35th St., Cleveland
Bachr, Mr. Herman	Detroit St., Cleveland
Baldwin, Mrs. Arthur D.	Lake Shore Boulevard, Cleveland
Baldwin, Mr. Arthur D.	1025 Garfield Building, Cleveland
Bill, Dr. Arthur	2082 East 96th St., Cleveland
Blair, Dr. B. H.	Lebanon
Brokaw, Dr. Wm. F.	2102 East 55th St., Cleveland
Brown, Mr. Alexander C.	1974 East 71st St., Cleveland
Brown, Miss Elizabeth Freeman	2727 Euclid Ave., Cleveland
Bruner, Dr. Wm. H.	13380 Euclid Ave., Cleveland
Bushnell, Mrs. Edward	1900 East 81st St., Cleveland
Calfee, Mr. R. M.	1608 Williamson Building, Cleveland
Cameron, Mr. L. J.	% Central National Bank, Cleveland
Chisholm, Mrs. Wm.	3618 Euclid Ave., Cleveland
Clark, Mrs. Harold F.	1809 East 82nd St., Cleveland
Conrad, Mr. A. J.	10127 South Boulevard, Cleveland
Cowles, Mr. J. G. W.	712 Park Building, Cleveland
Crile, Dr. George	6203 Euclid Ave., Cleveland
Cummer, Miss R. H.	1950 East 79th St., Cleveland
Cushing, Mrs. Melanie H.	4712 Euclid Ave., Cleveland
Cushing, Mrs. William	2008 Euclid Ave., Cleveland
Cutler, Prof. J. R.	11311 Blosser Road, Cleveland
Davis, Mr. Otto W.	34 East Rich St., Columbus
Day, Mrs. E. L.	Akron
Devereux, Mrs. H. K.	2525 Euclid Ave., Cleveland
Feuss, Mrs. Paul L.	11452 Euclid Ave., Cleveland
Flory, Mrs. W. L.	9006 Lamont Ave., Cleveland
Ford, Dr. C. E.	Sec'y Board of Health, Cleveland
Farrer, Dr. Arnold F.	1110 Euclid Ave., Cleveland
Garfield, Mrs. Abram	Lake Shore Boulevard, Cleveland
Garfield, Mr. Abram	Lake Shore Boulevard, Cleveland
Garfield, Mrs. James R.	3328 Euclid Ave., Cleveland
Gelb, Dr. F. G.	410 Osborn Building, Cleveland
Gerstenberger, Dr. H. J.	2500 East 35th St., Cleveland
Gitchell, Miss Katherine	Akron
Glass, Dr. G. F.	13491 Euclid Ave., Cleveland
Goodhue, Dr. George	Dayton
Graduate Nurses' Association (A.M.I.)	2240 East 71st St., Cleveland
Grandin, Mrs. G. W.	10723 Magnolia Drive, Cleveland
Grandin, Mrs. G. W.	Magnolia Drive, Cleveland
Greene, Mrs. Edward B.	10831 Magnolia Drive, Cleveland
Greene, Mr. Edward B.	Cleveland Trust Company, Cleveland
Hamann, Dr. C. A.	416 Osborn Building, Cleveland
Hanna, Mrs. Howard M., Jr.	Station II., Cleveland
Hanna, Mr. H. M.	2417 Prospect Ave., Cleveland
Hanna, Mrs. H. M.	2417 Prospect Ave., Cleveland
Hanna, Mrs. Mark H.	Station II., Cleveland
Hart, Mr. Louis F.	1875 East 80th St., Cleveland
Harvey, Mr. M. C.	215 Cuyahoga Building, Cleveland
Harvey, Mr. P. W.	2198 East 40th St., Cleveland
Hampstead, Dr. Helen	Euclid-Donn Building, Cleveland
Hencke, Mr. J. W.	2216 East 80th St., Cleveland
Herrick, Mrs. F. C.	11318 Euclid Ave., Cleveland
Hitchcock, Miss Mary J.	Visiting Nurse Association, Cor. Cham- pion St. and Front St., Youngstown
Hogen, Mr. F. G.	1823 East 97th St., Cleveland
Hogle, Miss Alma C.	Huron Road Hospital, Cleveland
Holden, Mrs. L. Deane	Station II., Cleveland
Hoover, Dr. C. F.	702 Rose Building, Cleveland
Hord, Mrs. John	Cleveland
Howell, Dr. J. Morton	Reibold Building, Dayton
Instructive District Nursing Association (A.M.I.)	276 East State St., Columbus
Ireland, Mrs. Robert L.	Lake Shore Boulevard, Cleveland
Irving, Miss Annie E.	Huron Road Hospital, Cleveland
Jacobs, Mrs. H. H.	26 Brown Ave., Akron
Jett, Dr. R. L.	1490 East 55th St., Cleveland

Johnson, Miss M. L.	1654 East 86th St., Cleveland
Kerruish, Mr. S. Q.	1011 Society for Saving Building, Cleveland
Ladd, Dr. L. W.	211 Osborn Building, Cleveland
Landis, Dr. John H.	Health Officer, City Hall, Cincinnati
Leet, Miss Harriet L.	2500 East 35th St., Cleveland
Lowman, Dr. John H.	1807 Prospect Ave., Cleveland
McCroskey, Mrs. James	13720 Euclid Ave., Cleveland
McMillin, Mrs. S. S.	Station II, Cleveland
Marks, Mr. Martin A.	5032 Broadway, Cleveland
Mather, Mrs. A. S.	2005 Euclid Ave., Cleveland
Mather, Miss Constance	Station II, Cleveland
Mather, Mr. Samuel	Western Reserve Building, Cleveland
Meekes, Mr. Gus	1327 West 9th St., Cleveland
Metcalf, Dr. Maynard M.	Oberlin College, Oberlin
Miller, Mrs. Elizabeth C. T.	3738 Euclid Ave., Cleveland
Miller, Dr. T. Clarke	Massillon
Morgan, Mrs. C. J.	2142 Euclid Ave., Cleveland
Morgenroth, Dr. S.	202 Everett Building, Akron
Morse, Mrs. J. C.	Station II, Cleveland
Newell, Mrs. J. E.	Mentor
Ohio State Association of Graduate Nurses (A.M.I.)	Massillon
O'Neil, Miss Cordella	% Marion Public School, Cleveland
Otis, Mr. Charles A.	Cuyahoga Building, Cleveland
Otis, Mrs. Charles A.	3436 Euclid Ave., Cleveland
Otis, Mrs. Harrison G.	6016 Euclid Ave., Cleveland
Patterson, Dr. C. L.	Dayton
Perkins, Mr. Douglas	1404 West 3rd St., Cleveland
Peskind, Dr. A.	2414 East 55th St., Cleveland
Phillips, Dr. John	10509 Euclid Ave., Cleveland
Pope, Dr. Carlyle	1950 East 81st St., Cleveland
Prescott, Mrs. O. W.	1813 East 65th St., Cleveland
Rachford, Dr. B. K.	323 Broadway, Cincinnati
Rees, Mrs. William	3624 Euclid Ave., Cleveland
Rigelhaupt, Dr. William	2346 East 43rd St., Cleveland
Rosenfeld, Miss Irma L.	1706 Magnolia Drive, Cleveland
Seager, Mr. Wilford C.	Hippodrome Building, Cleveland
Samuel, Miss Mary A.	The Lakeside Hospital, Cleveland
Scott, Dr. N. Stone	603 Citizens' Building, Cleveland
Sellings, Dr. O. H.	816 Oak St., Columbus
Seymour, Mrs. Belden	2118 East 46th St., Cleveland
Shackleton, Dr. W. E.	503 Osborn Building, Cleveland
Sheridan, Mrs. R. B.	1893 East 82nd St., Cleveland
Sherwin, Miss Belle	3328 Euclid Ave., Cleveland
Sherwin, Mrs. H. A.	3328 Euclid Ave., Cleveland
Sherwin, Mrs. John	% Marion Public School, Cleveland
Sherwin, Miss Prudence	Willoughby
Silver, Mrs. M. T.	1725 Magnolia Drive, Cleveland
Skeel, Dr. A. J.	1834 East 65th St., Cleveland
Squire, Mr. Andrew	3443 Euclid Ave., Cleveland
Stevenson, Dr. Mark D.	165 East Market St., Akron
Sullivan, Miss Selma	7218 Euclid Ave., Cleveland
Taylor, Dr. Ralph B.	1275 North High St., Columbus
Thomas, Dr. J. J.	1110 Euclid Ave., Cleveland
Titlow, Dr. Bennetta D.	Springfield
Todd, Dr. Henry D.	38 Brown Building, Akron
Tuttle, Miss Jennie L.	276 East State St., Columbus
Tyler, Mrs. W. S.	1415 Euclid Ave., Cleveland
Upson, Dr. Henry S.	10008 Magnolia Drive, Cleveland
Visiting Nurse Association (A.M.I.)	220 West Seventh Ave., Cincinnati
Visiting Nurse Association (A.M.I.)	501 St. Clair Ave., Cleveland
Wade, Mrs. Jetha	3903 Euclid Ave., Cleveland
Wade, Mrs. J. H.	3003 Euclid Ave., Cleveland
Waite, Dr. F. C.	1778 Crawford Road, Cleveland
White, Mrs. W. T.	Station H, Cleveland
Whitlock, Mr. and Mrs. E. H.	Open Hearth, Lake Ave., Cleveland
Williams, Mr. Edward M.	10018 Magnolia Drive, Cleveland
Witter, Dr. C. Orville	1838 West 57th St., Cleveland
Wolfenstein, Dr. S.	5000 Woodland Ave., Cleveland
Woodford, Mr. W. R.	2892 Berkshire Road, Cleveland
Wright, Mr. Howell	501 St. Clair Ave., Cleveland

Wyckoff, Dr. C. W.....2500 East 35th St., Cleveland
 Zorn, Mrs. K. M.....112 Noble Road, Cleveland

Oklahoma

Johnson, Mr. Roswell H.....Bartlesville

Oregon

Hall, Dr. Robert G.....715 Johnson St., Portland

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INDEX

- Address by the President, Cressy L. Wilbur, M. D., 25
- Address by the President for 1913, L. Emmett Holt, M. D., 78
- Address of Welcome, Newton D. Baker, 22
- Affiliated Societies, Reports of: 325
- Babies' Dispensary Guild, The, Hamilton, Ontario, 325
- Babies' Milk Fund, The Detroit, 327
- Babies' Milk Fund Association, The, Louisville, 327
- Certified Milk and Baby Hygiene Committee, San Francisco, 329
- Children's Aid Society of Pennsylvania, The, Philadelphia, 330
- Christian Service League, Wichita, 331
- Committee of Childhood's Health Exhibition, The, Boston, 331
- Committee on Infant Social Service, etc., Boston, 332
- Committee on Prevention of Blindness, New York, 334
- Diet Kitchen of the Oranges, 335
- District Nursing Association, The, Providence, 335
- Health Bureau, Rochester, N. Y., 336
- Health Department, Richmond, Va., 337
- Infant Welfare Association, New Haven, Conn., 337
- Infant Welfare Committee of the Associated Charities, Birmingham, Ala., 338
- Infant Welfare Society, Chicago, 339
- Infant Welfare Society, Minneapolis, 340.
- Infant Welfare Work of the Duluth Consistory, Scottish Rite Masons, Duluth, Minn., 341
- Instructive District Nursing Association, Columbus, Ohio, 342
- Maryland Association for Study and Prevention of Infant Mortality, Baltimore, 343
- Massachusetts Milk Consumers' Association, Boston, 346
- National League of Nursing Education, 347
- New York Diet Kitchen Association, New York City, 348
- New York Milk Committee, New York City, 349
- Utica Babies' Pure Milk and Health Station, Utica, N. Y., 353
- Visiting Nurse Association, Waterbury, Conn., 354
- Ahrens, Minnie, Discussion, 204
- Aseptic Rearing of Children, The, Jacques Bertillon, M. D., 42
- Babies,—Institutional Care of, 45
- Baker, S. Josephine, M. D., Discussion, 253, 259, 315
- Baker, Newton D., Address of Welcome, 22
- Baltimore, Maryland Association for Study and Prevention of Infant Mortality, 343
- Report on the Study of Agencies Caring for Women in Confinement, in, Louise Pearce, M. D., 272
- Barker, James F., Continuation Schools, Discussion, 146
- Batt, Wilmer R., M. D., Report of Committee on Birth Registration, 94
- Discussion, 117
- Belfeld, Dr., Discussion, 216, 290
- Bertillon, Jacques, M. D., The Aseptic Rearing of Children, 42
- Discussion, 116
- Better Parents of Better Children, Helen C. Putnam, M. D., 72
- Birmingham, Ala., Infant Welfare Committee of the Associated Charities, 338
- Birmingham, Ala., Midwifery Investigation, Wm. M. McGrath, 260
- Birth Rate, Decrease of, 39

- Birth Records, Utilization of, 96
 Birth Registration, 38, 47-50, 69, 97,
 110, 326, 327, 329, 330, 341,
 335, 336, 337, 338, 340, 341,
 342, 345, 352, 354
 Birth Registration, Discussion:
 Bertillon, Jacques, M. D., 116
 Putnam, Helen C., M. D., 117
 Marlatt, Abby, 117
 Wilbur, Cressy L., M. D., 117
 Birth Registration, Introductory
 Statement by the Chairman,
 Wilmer R. Batt, M. D., 93
 Report of Committee on, Wil-
 mer R. Batt, M. D., 94
 Section on, 93
 The Legal Importance of, Wilmer
 W. Ehler, 102
 Births, Notification of, Act, 69
 Boston, Committee of Childhood's
 Health Exhibition, 331
 Committee on Infant Social
 Service, 332
 Massachusetts Milk Consumers'
 Association, 346
 Brockett, Myrn, Educational Oppor-
 tunities of the Day Nursery,
 317
 Caroline West and School for Moth-
 ers, F. Freese, R. N., 205
 Cary, C. P., Continuation Schools,
 141
 Chapin, Charles V., M. D., Report
 upon a Study of Environmen-
 tal Conditions and Infant
 Health in Providence, 279
 Chicago, Infant Welfare Society,
 339
 Midwifery Investigation in, 261
 Report upon a Study of Tem-
 perature and Infant Health
 in, Henry F. Helmholtz, M. D.,
 282
 Vice Commission, 161
 Child Labor, 97
 Children's Bureau, Federal, 47
 Classes for Mothers, 335 (see also
feeding conferences)
 Cleveland, Substitute Agencies for
 Midwives, N. Theodore Miller,
 M. D., 275
 Columbus, O., Instructive District
 Nursing Association, 342
 Conservation of Infant Life, 87, 96,
 99
 Constitution, American Association
 for Study and Prevention of
 Infant Mortality, 355
 Continuation Schools, 75, 123
 Chairman's Introduction, Helen
 C. Putnam, M. D., 118
 Section on, 118
 Cooley, T. B., M. D., Discussion,
 204
 Crandall, Ella Phillips, Secretary,
 Section on Nursing and Social
 Work, 292
 Davis, William H., M. D., The Size
 of Families in Relation to
 Nationality, Occupation and
 Economic Conditions, and the
 Relative Occurrence of Still-
 births in the Various Classes
 of Population, 109
 Day Nursery, Educational Opportu-
 nities of the, Myrn Brockett,
 317
 De Normandie, R. L., M. D., Mid-
 wifery Investigation, New
 England, 200
 Department of Health's Activity in
 Lessening Infant Mortality in
 Pennsylvania, The, B. Frank-
 lin Royer, M. D., 87
 Detroit, Babies' Milk Fund, 327
 Directors, 3, 7
 Does the Average Midwife Meet the
 Requirements of a Patient in
 Confinement? George W. Kos-
 mak, M. D., 238
 Duluth, Minn., Infant Welfare Work
 of the Duluth Consistory,
 Scottish Rite Masons, 341
 Education for Parenthood, 73
 Education of Boys and Men for
 Home-Making in Part-Time
 and Continuation Schools,
 C. A. Prosser, 123
 Educational Opportunities of the
 Day Nursery, Myrn Brockett,
 317
 Educational Prevention of Infant
 Mortality, 118
 Effect of Moderately High Tempera-
 ture upon the Infant, The, J.
 H. Mason Knox, Jr., M. D.,
 284

- Ehler, Elmer W., The Legal Importance of Birth Registration, 102
- Elimination of the Midwife, The, Charles Edward Ziegler, A. M., M. D., 222
- Environmental Conditions and Infant Health in Providence, Report upon a Study of, Charles V. Chapin, M. D., 279
- Eugenical Aspect of Venereal Disease, The, H. E. Jordan, Ph. D., 156
- Eugenics and Infant Mortality, H. H. Laughlin, 150
- and Mental Variations, Roswell H. Johnson, M. S., 164
- History of Movement, 52-65
- Section on, 147
- The Proper Attitude of the Church and Charitable Institutions Towards, 172
- The Proper Attitude of the Medical Profession Toward, 172
- The Rearing of the Human Thoroughbred, H. H. Jordan, Ph. D., 52
- Euthenical and Eugenic Aspects of Infant and Child Orthogenesis, The, J. E. Wallace Wallin, 173
- Executive Secretary, Report of, 16
- Federal Children's Bureau, The, Julia C. Lathrop, 47
- Feeding Conferences, 325, 329, 335, 336, 340, 344, 338 (see also *Milk Stations*)
- Foley, Edna L., Acting Chairman, Section on Nursing and Social Work, 292
- Freeland, J. H., M. D., Discussion, 253
- Freese, F., R. N., Caroline Rest and School for Mothers, 295
- Gerstenberger, H. J., M. D., Chairman, Section on Progress in Preventive Work, 195
- Discussion, 218
- Goddard, Henry H., Ph. D., Infant Mortality in Relation to the Hereditary Effects of Mental Deficiency, 167
- Gulfof, William H., M. D., The Utilization of Birth Records in the Practical Administration of Bureaus of Child Labor, Tenement House Inspection, Compulsory School Attendance, Infant Hygiene and Similar Agencies, 96
- Hamill, S. McClintock, M. D., Discussion, 217
- Hamilton, Ontario, Babies' Dispensary Guild, 325
- Hammond, A. P., M. D., Discussion, 257
- Health Age, The, Janet Lane-Clayton, M. D., 66
- Hedger, Caroline, M. D., Investigation of 363 Midwives in Chicago, 261
- Helmholz, Henry F., M. D., Discussion, 218
- Pasteurization, Sterilization and Boiling of Milk, 206
- Report upon a Study of Temperature and Infant Health in Chicago, 282
- Heredity, 184, 185
- Effects of Mental Deficiency, 167
- Significance of, Alfred G. Mayer, Sc.D., 148
- Holt, L. Emmett, M. D., Discussion, 204
- The Importance of Hospitals for Infants and their Part in the Prevention of Infant Mortality, 78
- Home Economics Work in the United States for Men and Boys, Charles Ford Langworthy, Ph. D., 131
- Hospitals for Infants, 78
- Housing,—Introductory Remarks by Chairman, Prof. C.-E. A. Winslow, 277
- Section on, 277
- Huntington, James Lincoln, M. D., Midwifery Investigation, New England, 269
- Secretary, Section on Midwifery, 219

- Importance of Hospitals for Infants and Their Part in the Prevention of Infant Mortality, The, L. Emmett Holt, M. D., 78
- Infant and Child Orthogenesis, The Euthenical and Eugenic Aspects of, J. E. Wallace Wallin, 173
- Infant Feeding, 43, 80, 82, 195, 203, 205, 349
- Infant Health and Environmental Conditions, 279
- Infant Health and Temperature, 282, 284
- Infant Mortality, 74
—and Eugenics, 150
—and the Public Health School Nurse, 308
—and Tuberculosis, 154
Educational Prevention of,—118
Importance of Hospitals for Infants in Prevention of,—78-86
Some Measures Urgently Needed for the Prevention of, in the United States, 25
Statistical Study of,—87
- Infant Mortality in Pennsylvania, The Department of Health's Activity in Lessening,—B. Franklin Royer, M. D., 87
- Infant Mortality in Relation to the Hereditary Effects of Mental Deficiency, Henry H. Goddard, Ph. D., 167
- Infant Mortality in Relation to the Hereditary Effects of Tuberculosis, H. E. Jordan, Ph. D., 154
- Infant Welfare Societies (see *Feeding Conferences*)
- Institutional Care of Babies, 45
- Investigation of 363 Midwives in Chicago, Caroline Hedger, M. D., 261
- Johnson, Roswell H., M. S., Eugenics and Mental Variations, 164
—Secretary, Section on Eugenics, 147
- Johnston, Collins, M. D., Discussion, 203, 289
- Jordan, H. E., Ph. D., Chairman, Section on Eugenics, 147
- Eugenics: The Rearing of the Human Thoroughbred, 52
- Infant Mortality in Relation to the Hereditary Effects of Tuberculosis, 154
- The Eugenic Aspect of Venereal Disease, 156
- Knipp, Gertrude B., Report of Executive Secretary, 16
- Knox, J. H. Mason, Jr., M. D., The Effect of Moderately High Temperature upon the Infant, 284
- Kosmak, George W., M. D., Discussion, 258
Does the Average Midwife Meet the Requirements of a Patient in Confinement? 238
- Laue-Clayton, Janet, M. D., The Health Age, 66
- Langworthy, Charles Ford, Ph. D., Home Economics Work in the United States for Men and Boys, 131
- Lathrop, Julia C., The Federal Children's Bureau, 47
- Laughlin, H. H., Eugenics and Infant Mortality, 150
- Legal Importance of Birth Registration, The, Elmer W. Ehler, 102
- Leet, Harriet, Discussion, 204
- Louisville, Ky., Babies' Milk Fund Association, 327
—Midwifery Investigation in, Elizabeth Shaver, 205
- Lowman, John H., M. D., The Public Health School Nurse and Infant Mortality, 308
- Magruder, G. Lloyd, M. D., Discussion, 212
Discussion, 117
- Marlatt, Prof. Abby L., Secretary, Section on Continuation Schools, 118
- Maternal Feeding, J. P. Sedgwick, M. D., 195
- Maternal Feeding, Discussion: Johnston, Collins H., M. D., 203
Holt, L. Emmett, M. D., 204
Cooley, T. B., M. D., 204

- Leet, Harriett, 204
 Ahrens, Minnie, 204
 Schwarz, Herman, M. D., 204
 Schlutz, F. W., M. D., 205
 Van Ingen, Philip, M. D., 205
 Sedgwick, J. P., M. D., 205
Maternal Nursing, 33, 195
Mayer, Alfred G., Sc.D., The Significance of Heredity, 148
McClure, Margaret N., R. N., The Prenatal Work of the St. Louis Visiting Nurse Association, 202
McLanahan, Austin, Treasurer's Report, 21
McGrath, Wm. M., Midwifery Investigation, Birmingham, Ala., 200
Membership List, 350
Men and Boys, Education of, for Home Making, 123, 141
Men and Boys, Home Economics Work for, in the United States, 131
Mental Deficiency, Hereditary Effects of, in Relation to Infant Mortality, 167
Mental Variations and Eugenics, Roswell H. Johnson, M. S., 164
Midwife, Does the Average Meet the Requirements? 238
Midwife, The Elimination of, Charles Edward Ziegler, A. M., M. D., 222
Midwifery, 35
Midwifery, Discussion:
 Tallant, Alice Weld, M. D., 250
 Freeland, J. R., M. D., 253
 Baker, S. Josephine, M. D., 253, 250
 Van Ingen, Philip, M. D., 255
 Skeel, A. J., M. D., 256
 Hammond, A. P., M. D., 257
 Royer, B. Franklin, M. D., 257
 Ziegler, Charles Edward, M. D., 258
 Kosmak, George, M. D., 258
Midwifery, Reports:
 Birmingham, 200
 Chicago, 261
 Louisville, 265
 New England, 266
 Baltimore, 272
 Cleveland, 275
Midwifery, Section on, 219
 Statement by Chairman, Mary Sherwood, M. D., 219
Midwives, 326, 327, 328, 329, 330, 334, 335, 336, 337, 338, 340, 341, 342, 345, 352, 354
 —in Chicago, Investigation of, 261
 —in Massachusetts, 267
 —Substitute Agencies for, 272-276, 327,
Milk Pasteurization, Sterilization and Boiling of, Henry F. Helmholz, M. D., 206
Milk Standards, 350
Milk Stations, 352, 328, 335, 336, 353, 354 (See also *Feeding Conferences*)
Milk Sterilization of, 82
Milk Supply, Improvement of, 34, 346, 349
Miller, Louise Klein, Continuation Schools, 143
Miller, N. Theodore, M. D., Substitute Agencies in Cleveland, 275
Minneapolis, Infant Welfare Society, 340
Mothers, Schools for, 205, 304, 322
National League of Nursing Education, The, 347
New England Midwifery Investigation, 266
New Haven, Conn., Infant Welfare Association, 337
New York City, The New York Diet Kitchen Association, 348
 The New York Milk Committee, 349
 Committee on Prevention of Blindness, 334
Notification of Births Act, 60
Nursery Maids, Training of, 35, 320
Nurses, Instruction of, in Care of Infants, 85, 320, 347
Nursing and Social Work, Section on, 202
 Section on, M. Adelaide Nutting, Chairman, 202
Nutting, M. Adelaide, Chairman, Section on Nursing and Social Work, 292
Obstetrics, 35, 219, 222, 238, 260, 261, 272, 265, 266, 275
Orange, N. J., Diet Kitchen, 385

- Parenthood, Education for, 73
 Pasteurization, 33
 Pasteurization, Discussion:
 Magruder, G. Lloyd, M. D., 212
 Beifeld, M. D., 216
 Winslow, C.-E. A., Ph. D., 216
 Hammill, S. McC., M. D., 217
 Schwarz, Herman, M. D., 218
 Helmholz, Henry F., M. D., 218
 Pasteurization, Sterilization and
 Boiling of Milk, Henry F.
 Helmholz, M. D., 206
 Pearce, Louise, M. D., Report on the
 Study of Agencies in Balti-
 more, Md., Caring for Women
 in Confinement, 272
 Philadelphia Baby Saving Show, 88
 Children's Aid Society, 330
 Prenatal Work, 220, 292, 325, 327,
 332, 336, 337, 338, 339, 344,
 345, 348, 352, 354
 —of the St. Louis Visiting
 Nurse Association, The, Mar-
 garet N. McClure, R. N., 292
 Progress in Preventive Work, Sec-
 tion on, 195
 Section on, H. J. Gerstenberger,
 M. D., Chairman, 195
 Proper Attitude of the Church and
 Charitable Institutions to-
 ward Eugenics, The, 172
 —of the Medical Profession to-
 ward Eugenics, The, 172
 Prosser, C. A., Education of Boys
 and Men for Home-Making in
 Part-Time and Continuation
 Schools, 123
 Providence, District Nursing Asso-
 ciation, 335
 Report upon Study of Environ-
 mental Conditions and Infant
 Health in, Charles V. Chapin,
 M. D., 279
 Public Health School Nurse and In-
 fant Mortality, The, John H.
 Lowman, M. D., 308
 Putnam, Helen C., M. D., Better
 Parents of Better Children,
 72
 Chairman's Introduction, Con-
 tinuation Schools, 118
 Discussion, 117
 Registration of Births, 38, 47-50, 60,
 97, 110, 337, 338, 341, 345, 354
 Report of Committee on Birth Reg-
 istration, Wilmer R. Batt,
 M. D., 94
 Report upon a Study of Tempera-
 ture and Infant Health in
 Chicago, Henry F. Helmholz,
 M. D., 282
 Report upon a Study of Environ-
 mental Conditions and Infant
 Health in Providence, Charles
 V. Chapin, M. D., 279
 Richmond, Va., Health Department,
 337
 Rochester, N. Y., Health Bureau,
 336
 Royer, B. Franklin, M. D., Discus-
 sion, 257
 The Department of Health's
 Activity in Lessening Infant
 Mortality in Pennsylvania, 87
 San Francisco, Certified Milk and
 Baby Hygiene Committee,
 329
 Schilutz, F. W., M. D., Discussion,
 205
 Schwarz, Herman, M. D., Discus-
 sion, 204, 218, 291
 Section on Housing with Section on
 Nursing and Social Work,
 277
 Sedgwick, J. P., M. D., Discussion,
 204, 205
 Maternal Feeding, 195
 Sex Hygiene, 76, 143, 100
 Shaver, Elizabeth, Midwifery Inves-
 tigation in Louisville, Ky.,
 265
 Sherwood, Mary, M. D., Chairman,
 Section on Midwifery, 219
 Discussion, 255, 260
 Significance of Heredity, The, Al-
 fred G. Mayer, Sc.D., 148
 Size of Families in Relation to
 Nationality, Occupation and
 Economic Conditions, and the
 Relative Occurrence of Still-
 births in the Various Classes
 of Population, The, William
 H. Davis, M. D., 109
 Skeel, A. J., M. D., Discussion, 256
 Societies, Reports of Affiliated, 325
 Some Measures Urgently Needed
 for the Prevention of Infant
 Mortality in the United
 States, Cressy L. Wilbur, M.
 D., 25

- Sterilization of Milk, 82
 Stillbirths, 109, 114, 115, 116
 St. Louis Visiting Nurse Association, The Prenatal Work of the, Margaret N. McClure, R. N., 202
 Substitute Agencies for Midwives, 272-276, 327
 —in Cleveland, N. Theodore Miller, M. D., 275

 Talbot, Fritz B., M. D., Discussion, 200
 Tallant, Alice Weld, M. D., Discussion, 260
 Temperature, Discussion:
 Johnston, Collins H., M. D., 280
 Talbot, Fritz B., M. D., 200
 Reifeld, M. D., 200
 Schwarz, Herman, M. D., 201
 Temperature and Infant Health in Chicago, Report upon a Study of, Henry F. Helmholtz, M. D., 282
 Temperature and Infant Morbidity and Mortality, Discussion, 280-291
 Training of Nursery Maids, 85, 320
 Travelling Exhibit, American Association for Study and Prevention of Infant Mortality, 16
 Travelling Exhibit, Pennsylvania State Department of Health, 87
 Treasurer's Report, 21
 Tuberculosis and Infant Mortality, 154

 Utica Babies' Pure Milk and Health Station, Utica, N. Y., 353
 Utilization of Birth Records in the Practical Administration of
 Bureaus of Child Labor, Tenement House Inspection, Compulsory School Attendance, Infant Hygiene and Similar Agencies, The, William H. Guilfooy, M. D., 96

 Van Ingen, Philip, M. D., Discussion, 205, 255
 Venereal Disease, The Eugenical Aspect of, H. E. Jordan, Ph. D., 156
 Vital Statistics, 26 (See also *Birth Registration*)

 Wallin, J. E. Wallace, The Euthenical and Eugenical Aspects of Infant and Child Orthogenesis, 173
 Waterbury, Conn., Visiting Nurse Association, 354
 Welfare Stations, 344
 Wichita, Christian Service League, 331
 Wilbur, Cressy L., M. D., Discussion, 117
 Some Measures Urgently Needed for the Prevention of Infant Mortality in the United States, 25
 Winslow, Prof. C.-E. A., Chairman, Section on Housing, 277
 Discussion, 216, 217

 Ziegler, Charles Edward, M. D., Discussion, 258
 The Elimination of the Midwife, 222

